UX-68DE
FO-78DE

SHARP SERVICE MANUAL

No. 00ZUX68DE/SME

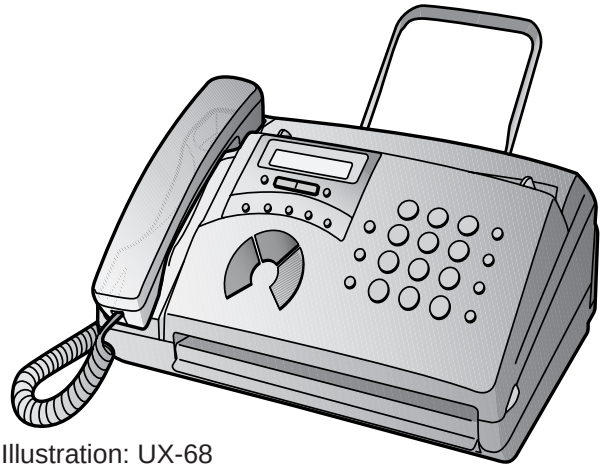

Illustration: UX-68

FACSIMILE

UX-68
MODEL FO-78

This service manual is omitted because it is partly common to UX-40DE of the service manual of the previous issue. Those common parts are to refer to the service manual of UX-40DE (00ZUX40DE/SME).

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PARTS GUIDE

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's
instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type recommandé par le constructeur.
Mettre au rébut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfare vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

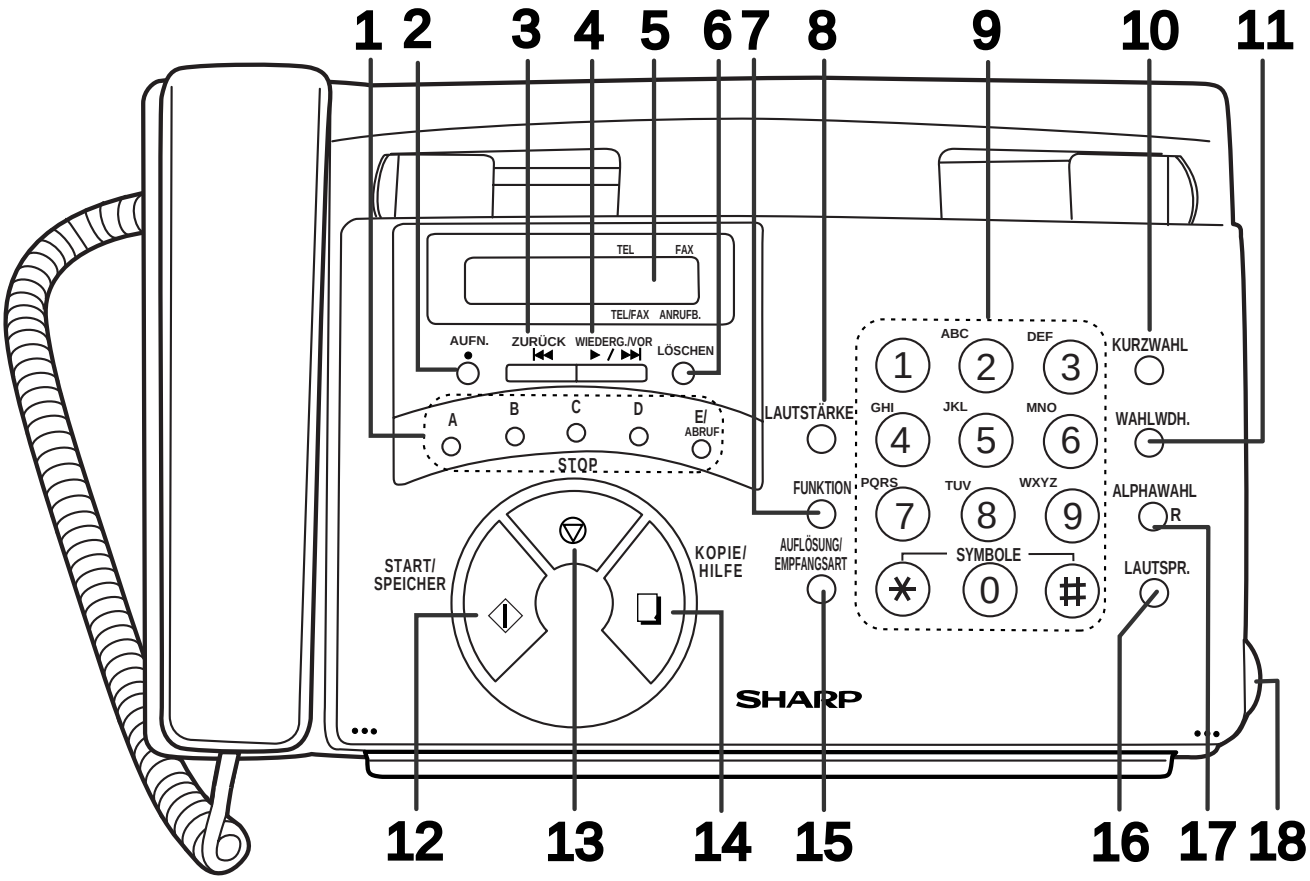
Automatic dialing:	Rapid Key Dialing: 5 numbers Speed Dialing: 35 numbers
Fax paper:	Initial starter roll (included with machine): 10 m Recommended replacement roll: FO-20PR, 30m
Modem speed:	9600 bps with automatic fallback to lower speeds
Transmission time* :	Approx. 15 seconds
Resolution:	**Horizontal:** 8 dots/mm **Vertical:** Standard: 3.85 lines/mm Fine/Halftone: 7.7 lines/mm Super fine: 15.4 lines/mm
Automatic document feeder:	5 pages max. (80g/cm^2 paper)
Halftone (grayscale):	64 levels
Display:	16-digit LCD display
Compression scheme:	MR, MH, Sharp (H2)
Applicable telephone line:	Public switched telephone network/PBX
Compatibility:	ITU-T (CCITT) G3 mode
Input document size:	**Automatic feeding:** Width: 148 to 216 mm Length: 140 to 297 mm **Manual feeding:** Width: 148 to 216 mm Length: 140 to 600 mm
Effective scanning width:	210 mm max.
Effective printing width:	210 mm max.
Contrast control:	Automatic/Dark selectable
Reception modes:	Fax, Tel, Tel/Fax, A.M.
Copy function:	Yes
Telephone function:	Yes (cannot be used if power fails)
Noise emission:	Less than 70 dBA (Measured according EN 277779 (DIN 45635))
Power requirements:	220-230 V AC, 50 Hz
Operating temperature:	5 - 35°C
Humidity:	Maximum: 85 % RH
Power consumption:	Standby: 2.6 W Maximum: 115 W
Dimensions:	Width: 304 mm Depth: 236 mm Height: 122 mm
Weight:	Approx. 2.6 kg

* Based on ITU-T (CCITT) Test Chart #1 at standard resolution in Sharp special mode, excluding time for protocol signals (i.e., ITU-T phase C time only).

Note: The facsimile machine is Year 2000 compliant.

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for procduct improvement without prior notice. The performance specifications figures indicated are nominal values of production units. There may be some deviation from these values in individual units.

[2] Operation panel



1. Zielwahltasten (Rapid Dial keys)
Press one of these keys to dial a fax number automatically.

2. AUFN. (REC/MEMO key)
Press this key to record a phone conversation or a message.

3. ZURÜCK (REPEAT key)
Press this key to repeat playback of a message.

4. WIEDERG./VOR (PLAY/SKIP key)
Press this key to play recorded messages. During playback, press it to skip forward to the next message.

5. LCD-Anzeige (Display)
This displays messages and prompts during operation and programming.

6. LÖSCHEN (DELETE key)
Press this key to erase recorded messages.

7. FUNKTION (FUNCTION key)
Press this key to select various special functions.

8. Taste LAUTSTÄRKE (VOLUME keys)
Press this keys to adjust the volume of the speaker when the **SPEAKER** key has been pressed, the volume of the ringer at all other times.

9. Zifferntasten (Number keys)
Use these keys to dial numbers, and enter numbers and letters when storing auto-dial numbers.

10. KURZWAHL (SPEED DIAL key)
Press this key to dial a fax or voice number using an abbreviated 2-digit Speed Dial number.

11. WAHLWDH. (REDIAL key)
Press this key to automatically redial the last number dialed.

12. Taste START/SPEICHER (START/MEMORY key)
Press this key to send or receive a document or to scan a document into memory before sending it.

13. Taste STOP (STOP key)
Press this key to cancel operation before it is completed.

14. KOPIE/HILFE (COPY/HELP key)
When a document is in the feeder, press this key to make a copy of a document. At any other time, press this key to print out the Help List, a quick reference guide to the opeation of your fax machine.

15. Taste AUFLÖSUNG/EMPFANGSART (RESOLUTION/RECEPTION MODE key)
When a document is in the feeder, press this key to adjust the resolution for faxing or copying. At any other time, press this key to select the reception mode (an arrow in the display will point to the currently selected reception mode).

16. LAUTSPR. (SPEAKER key)
Press this key to listen the line and fax tones through the speaker when faxing a document.
Note: **This is not a speakerphone.** You must pick up the handset to talk with the other party.

17. ALPHAWAHL/R (SEARCH/R key)
Press this key to search for an auto-dial number, or, if you are on a P.B.X. extension, press this key to transfer a call.

18. BEDIENFELD ENTRIEGELN (Panel release)
Grasp this finger hold and pull toward you to open the operation panel.

[5] Quick reference guide

ENTERING YOUR NAME AND NUMBER

1. Press: FUNKTION 3 # #

   Display shows: OWN NUMBER SET

2. Press: START/ SPEICHER
3. Enter your fax number (max. of 20 digits) by pressing the number keys.
- To insert a space between digits, press the # key. To enter "+", press the ✳ key.
- If you make a mistake, press the **SPEED DIAL** key to backspace and clear the mistake.

4. Press: START/ SPEICHER
5. Enter your name by pressing the appropriate number keys as shown below.
- To enter two letters in succession that require the same key, press the **SPEAKER** key after entering the first letter.

SPACE = 1 1	J = 5 5	T = 8 8
A = 2 2	K = 5 5 5	U = 8 8 8
B = 2 2 2	L = 5 5 5 5	V = 8 8 8 8
C = 2 2 2 2	M = 6 6	W = 9 9
D = 3 3	N = 6 6 6	X = 9 9 9
E = 3 3 3	O = 6 6 6 6	Y = 9 9 9 9
F = 3 3 3 3	P = 7 7	Z = 9 9 9 9 9
G = 4 4	Q = 7 7 7	
H = 4 4 4	R = 7 7 7 7	
I = 4 4 4 4	S = 7 7 7 7 7	

- To change case, press the **REDIAL** key.
  Press # or ✳ to scroll through symbols and special characters.

6. When finished, press: START/ SPEICHER STOP

SETTING THE DATE AND TIME

1. Press: FUNKTION 3 # # #

   Display shows: DATE & TIME SET

2. Press: START/ SPEICHER
3. Enter two digits for the Day (01 through 31).
4. Enter two digits for the Month (01 through 12).
5. Enter four digits for the Year (Ex: 2000).
6. Enter two digits for the Hour (01 through 23).
7. Enter two digits for the Minute (00 through 59).
8. When finished, press: START/ SPEICHER STOP

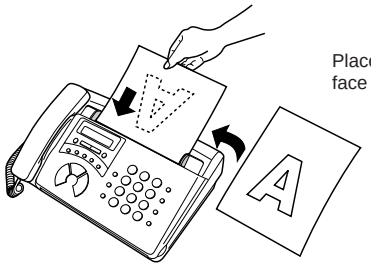
STORING AND CLEARING AUTO DIAL NUMBERS

1. Press: FUNKTION 3 #

   Display shows: FAX/TEL # MODE

2. Press **1** to store a number or **2** to clear a number.
3. Enter a 2-digit Speed Dial number (from 01 to 05 for Rapid Key Dialing, or 06 to 40 for Speed Dialing) (If you are clearing a number, go to Step 7.)
4. Enter the full fax/telephone number.
5. Press: START/ SPEICHER
6. Enter the name of the location by pressing number keys (Refer to the letter entry table in *ENTERING YOUR NAME AND NUMBER*.)
7. Press: START/ SPEICHER STOP

SENDING FAXES



Place your document (up to 5 pages) face down in the document feeder.

Normal Dialing

1. Lift the handset or press LAUTSPR.
2. Dial the fax number.
3. Wait for the reception tone (if a person answers, ask them to press their Start key).
4. Press: START/ SPEICHER

Rapid Key Dialing

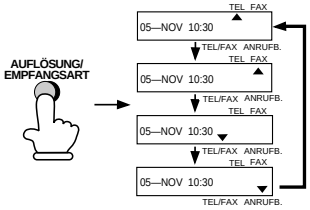
Press the appropriate Rapid Key. Transmission will begin automatically.

Speed Dialing

1. Press: KURZWAHL
2. Enter 2-digit Speed Dial number.
3. Press: START/ SPEICHER

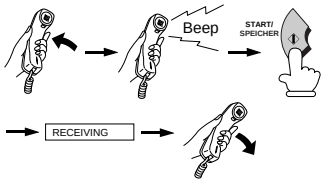
RECEIVING FAXES

Press the **RESOLUTION/RECEPTION MODE** key until the arrow in the display points to the desired reception mode (make sure the document feeder is empty).



FAX mode: The fax machine automatically answers on the set number of rings and receives the incoming document.

TEL mode:



TEL/FAX mode: This mode is convenient for receiving both faxes and voice calls. When a call comes in, the fax will detect whether it is a voice call (including manually dialed fax transmissions), or an automatically dialed fax.

A.M. mode: Select this mode when you go out to receive both voice messages and faxes.

M E M O

CHAPTER 2. ADJUSTMENTS

[1] Adjustments

General

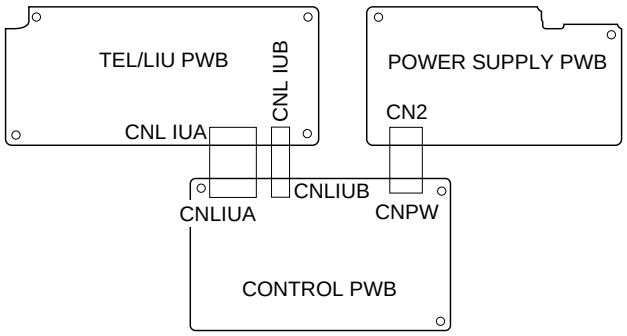
Since the following adjustments and settings are provided for this model, make adjustments and/or setup as necessary.

1. Adjustments

Adjustments of output voltage (FACTORY ONLY)

1. Install the power supply unit in the machine.
2. Set the recording paper and document.
3. When the document is loaded, power is supplied to the output lines. Confirm that outputs are within the limits below.

Output voltage settings



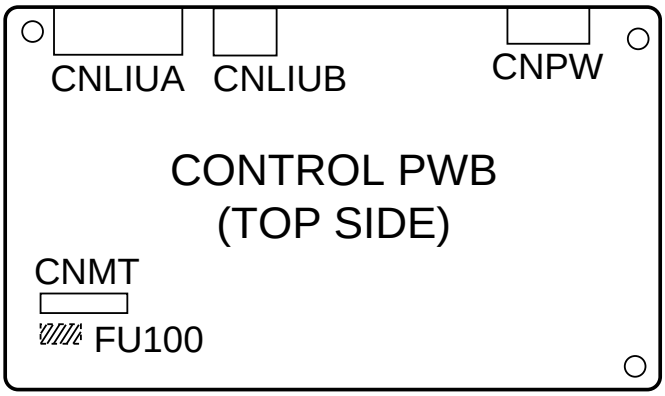
Output	Voltage limits
+5V	4.75V ~ 5.25V
+24V	24.0V ~ 26.0V

Connector No. / Pin No.	CNPW
1	DG
2	+5V
3	MG
4	MG
5	+24V
6	+24V
7	DG
8	PSAVE

2. IC protectors replacement

ICPs (IC Protectors) are installed to protect the motor driver circuit. ICPs protect various ICs and electronic circuits from an overcurrent condition.

The location of ICPs are shown below:



(1) FU100 (KAB2402) is installed in order to protect IC's from an overcurrent generated in the motor drive circuit. If FU100 is open, replace it with a new one.

3. Settings

Setting is not required since the required mode is TONE ONLY.

[2] Diagnostics and service soft switch

1. Operating procedure

(1) Entering the diagnostic mode

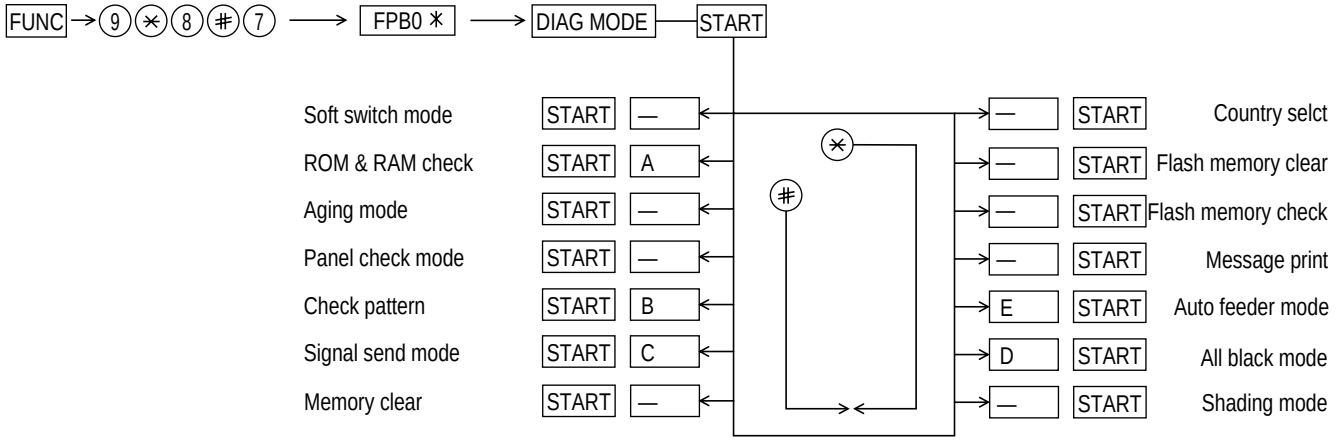
Press FUNC →9→ ✳ →8 →# →7 , and the following display will appear.

ROM Ver. FPB0 ✳ After 2 sec: DIAG MODE

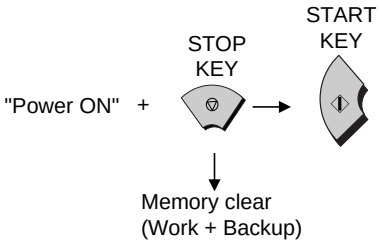
FPB0 ✳

Then press the START key and country name selected by country select will appear. Select the desired item with the ✳ key or the # key or select with the direct key. Enter the mode with the START key.

(Diag•specifications)



If the diag mode cannot be set, repeat the diag mode operation, performing the following operation.
After the power is turned on and "WAIT A MOMENT" is indicated, press the STOP key.



In relation with the process response (request from Production Engineering) "WAIT A MOMENT" clock indication may appear depending on STOP key timing. If the STOP key is held down, "MEMORY CLEAR?" appears.

2. Diagnostic items

ITEM No.	DIRECT key	Contents	Function
1	—	SOFT SWITCH MODE	Soft switches are displayed and changed. List can be output.
2	A	ROM & RAM CHECK	ROM is sum-checked, and RAM is matched. Result list is output.
3	—	AGING MODE	10 sheets of check patterns are output every 5 minutes per sheet.
4	—	PANEL CKECK MODE	Panel keys are tested. Result list is output.
5	B	CHECK PATTERN	2 sheets of check patterns are output.
6	C	SIGNAL SEND MODE	Various signals of FAX communication are output.
7	—	MEMORY CLEAR	Back-up memory is cleared, and is set at delivery.
8	—	SHADING MODE	Shading compensation is performed in this mode.
9	D	ALL BLACK PRINT	To check the print head, whole dots are printed over the interval of 2 m.
10	E	AUTO FEEDER MODE	Insertion and discharge of document are tested.
11	—	MESSAGE PRINT	The display message of each language is printed out together with the English equivalent.
12	—	FLASH MEMORY CHECK	Checks flash memory write/read.
13	—	FLASH MEMORY CLEAR	Checks flash memory clearing.
14	—	COUNTRY SELECT	The software parameter that it agreed in each country name is set up.

3. Diagnostic items description

3. 1. Soft switch mode

The soft switches are provided so that each operation mode can be set by using the operation panel.

In this mode, these switches can be checked and set.

The contents of these switches are backed up.

The available soft switches are SW-A1 to SW-K1.

The content of soft switches is shown in page 2-5 to 2-18.

The contents are set to factory default settings.

3. 2. ROM & RAM check

ROM executes the sum check, and RAM executes the matching test. The result will be notified with the number of short sounds of the buzzer as well as by printing the ROM & RAM check list.
Number of short sounds of buzzer 0 → No error
1 → ROM error
2 → RAM error (32Kbyte)

3. 3. Aging mode

If any document is first present, copying will be executed sheet by sheet. If no document is present, the check pattern will be printed sheet by sheet. This operation will be executed at a rate of one sheet per 5minutes, and will be ended at a total of 10 sheets.

3. 4. Panel check mode

This mode is used to check whether each key operates properly or not. Press the key on the operation panel, and the key will be displayed on the display. Therefore, press all keys. At this time,finally press the STOP key.

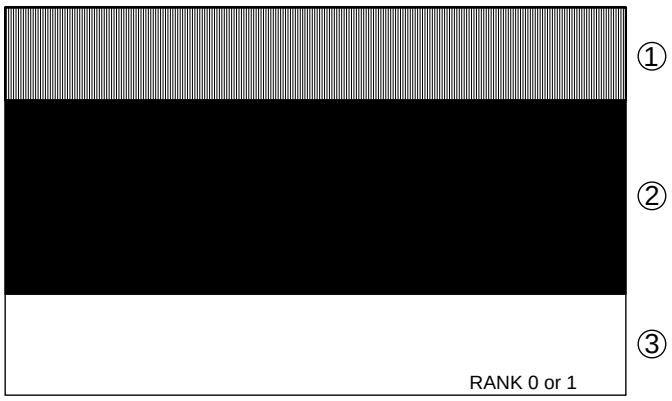
When the STOP key is pressed, the keys which are not judged as "pressed" will be printed on the result list.

- LED part of the contact image sensor (CIS) is kept on during the term from when "START" of the panel test mode to end with the STOP key.

3. 5. Check pattern

This mode is used to check the status of print head. Two sheets of check pattern are printed. The following information of check pattern is printed.

① Vertical stripes (alternate white and black lines) Approx. 35 mm
② Full black Approx. 70 mm
③ Full white Approx. 35 mm



Note:
There is a selection RANK 0 or 1 depending on resistance value of the thermal head. RANK 0 or RANK 1 is printed at the tail of check pattern to identify.

3. 6. Signal send mode

This mode is used to send various signals to the circuit during FAX communication. Every push of START key sends a signal in the following sequence. Moreover, the signal sound is also output to the speaker when the line monitor of the soft switch is on.

[1] No signal (CML signal turned on)
[2] 9600bps
[3] 7200bps
[4] 4800bps
[5] 2400bps
[6] 300bps (FLAG)
[7] 2100Hz (CED)
[8] 1100Hz (CNG)
[9] Pseudo Ring (models with auto TEL/FAX changeover function)
[10] END

3. 7. Memory clear

This mode is used to clear the backup memory and to reset to the factory default settings.
The content of each setting will be cleared.

Note: Be sure to execute the memory clear mode whenever you change the country select setting. The default settings of the soft switches vary according to the destinations. Therefore, if you do not execute the memory clear after changing the country select setting, some functions may not work.

3. 8. Shading mode

The mode is used for the shooting compensation. For reading, set up the special original paper.

The shooting compensation memorizes the reference data of white and black for reading.

Moreover, the memorized data is not erased even if memory clear mode is executed.

3. 9. All black print

This mode is used to check the state of the printing head and intentionally overheat it. Whole dots are printed over the interval of 2 m. If it is overheated or the printing sheet is jammed, press STOP key for the end.

3. 10. Auto feeder mode

In this mode, a document is inserted and discharged to check the auto feed function.

After this mode is started, set a document, and the document feed will be automatically tested.

3. 11. Message print

Used to print the displayed message of communication for translate each language.

3. 12. Flash memory check

Data is written into and read from the flash memory to check the data conformity. When the unit enters this mode, the check is started.

3. 13. Flash memory clear

Data in the flash memory is cleared (memory clear). When the unit enters this mode, the check is started.
*Operation of hardware and signal in the flash memory check mode and flash memory clear mode, and the result of check.
The result is announced by the buzzer beeps. The result of check is printed.
Beeps

0 → No error
1 → Memory error

3. 14. Country select

This mode is used to set line connecting parameters which correspond to each destination.

When the country select mode is selected, and then the START key is pressed, the destination (country name) currently set will be displayed.

By pressing the # or ⋇ key, selectable destinations (country names) are displayed. When the destination (country name) you want to choose is displayed, press the START key. Each parameter will be stored in RAM.

Destinations (Country names) you can select are as follows:

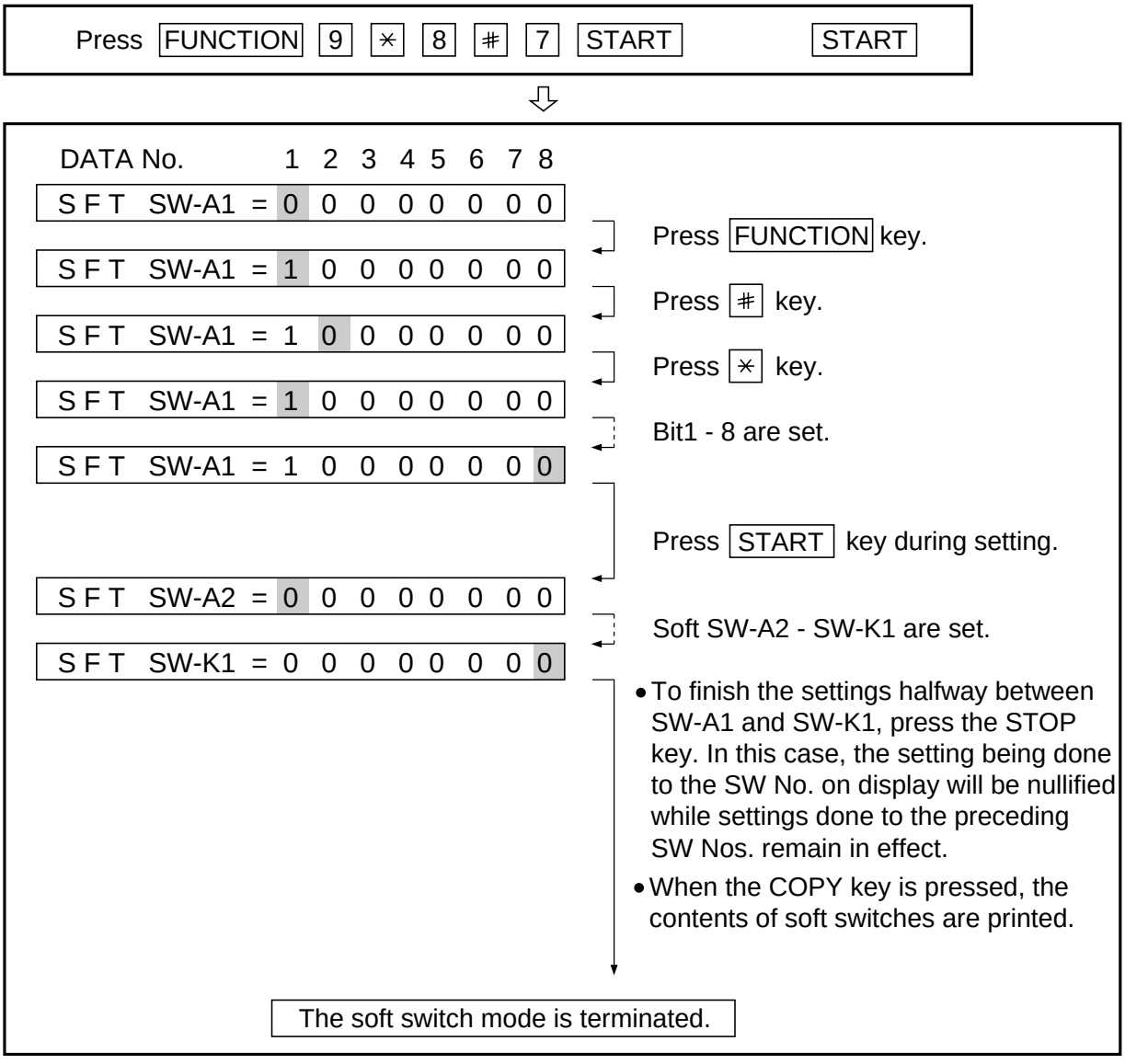
COUNTRY NAME	
AUSTRIA	(AT)
GERMANY	(DE)
FRANCE	(F)

Note: Be sure to execute the memory clear mode whenever you change the country select setting. The default settings of the soft switches vary according to the destinations. Therefore, if you do not execute the memory clear after changing the country select setting, some functions may not work.

Do not set a country select setting which is different from that of the destination of the machine. Some functions will not work because the function and the PWB specifications are different.

4. How to make soft switch setting

To enter the soft switch mode, press the following key entries in sequence.


Press FUNCTION 9 ⋇ 8 # 7 START START
DATA No. 1 2 3 4 5 6 7 8
S F T SW-A1 = 0 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A2 = 0 0 0 0 0 0 0 0
S F T SW-K1 = 0 0 0 0 0 0 0 0
Press FUNCTION key.
Press # key.
Press ⋇ key.
Bit1 - 8 are set.
Press START key during setting.
Soft SW-A2 - SW-K1 are set.
• To finish the settings halfway between SW-A1 and SW-K1, press the STOP key. In this case, the setting being done to the SW No. on display will be nullified while settings done to the preceding SW Nos. remain in effect.
• When the COPY key is pressed, the contents of soft switches are printed.
The soft switch mode is terminated.

5. Soft switch description

• Soft switch

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1				0		
SW I A1	1	Protect from echo	No				Yes	0	
	2	Forced 4800bps reception	Yes				No	0	
	3	Footer Print	Yes				No	0	
	4	Length limitation of copy/send/receive	No limit				Copy/Send:60cm Receive:1.5m	0	
	5	CSI transmission	Not transmitted				Transmitted	0	
	6	DIS receive acknowledgement during G3 transmission	Twice				NSF:Once DIS:Twice	0	
	7	Non modulated carrier for V29 transmission mode	Yes				No	0	
	8	Reserved						0	
SW I A2		Modem speed		V.29		V.27 ter			
				9600bps	7200bps	4800bps	2400bps		
	1		No. 1	0	0	0	0	0	
	2		No. 2	0	0	0	0	0	
	3		No. 3	0	1	1	0	0	
	4		No. 4	1	1	0	0	1	
	5	Reserved						0	
	6	H2 mode	No				Yes	0	
	7	Communication error treatment in RTN sending mode(Reception)	No communication error				Communication error	0	
	8	CNG transmission	No				Yes	0	
SW I A3		CED tone signal interval		1000ms	750ms	500ms	75ms		
	1		No. 1	1	1	0	0	0	
	2		No. 2	1	0	1	0	0	
	3	MR Coding	No				Yes	0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I A4	1	Signal Transmission level	Binary input					0	
	2	(0~-31 dBm setting by 1dBm step)	No. =	16	8	4	2	1	
	3			1	2	3	4	5	
	4			0	1	0	0	0	
	5								
	6	Protocol monitor(Error print)	Printed at com. error				Not printed	0	
	7	Protocol monitor	Yes				No	0	
	8	Line monitor	Yes				No	0	
SW I A5		Digital equalization setting(Reception)		7.2km		0km			
	1		No. 1	1		0		1	
	2		No. 2	1		0		1	
		Digital equalization setting(Transmitter)		7.2km		0km			
	3		No. 3	1		0		0	
	4		No. 4	1		0		0	
		Digital equalization setting(Reception		7.2km		0km			
	5	for Caller ID)	No. 5	1		0		0	
	6		No. 6	1		0		0	
	7	Error criterion	10 ~ 20 %				5 ~ 10 %	0	
	8	Anti junk fax check	Yes				No	1	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1				0		
SW I A6	1	Auto gain control(MODEM)	Enable				Disable	1	
	2	End Buzzer	Yes				No	1	
	3	Disconnect the line when DIS is received in RX mode	No				Yes	1	
	4	Equalizer freeze control(MODEM)	On				Off	0	
	5	Equalizer freeze control 7200 bps only	No				Yes	0	
	6	CNG transmission in manual TX mode	Yes				No	1	
	7	Initial compression scheme for sharp fax in TX mode	MR mode				H2 mode	0	
	8	Modem speed automatic down when RX level is under -40dBm	Yes				No	0	
SW I A7		EOL detect timer		5 seconds	13 seconds	20 seconds	25 seconds		
	1		No. 1	0	0	1	1	0	
	2		No. 2	0	1	0	1	1	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I B1	1	Reserved						0	
	2	Auto dial fax transmission by REDIAL key	Yes				No	0	
	3	Reserved						0	
	4	Recall interval	Binary input					0	
	5	(0~15.5min setting by 0.5min step)	No. =	16	8	4	2 1	1	
	6			4	5	6	7 8	0	
	7			0	1	0	1 0	1	
	8							0	
SW I B2	1	Recall times(0~15times setting)	Binary input					0	
	2		No. =	8	4	2	1	0	
	3			1	2	3	4	1	
	4			0	0	1	0	0	
	5	Dial tone detection(Before auto dial)	No				Yes	1	
	6	Reserved						0	
	7	Busy tone detection(After auto dial)	No				Yes	1	
	8	Busy tone detection pulse number (After auto dial)	4 pulses				2 pulses	0	
SW I B3		Waiting time after dialing		45 seconds	55 seconds	90 seconds	140 seconds		
	1		No. 1	0	0	1	1	1	
	2		No. 2	0	1	0	1	0	
	3	PBX connection	Yes				No	0	OPTION
	4	Reserved						0	
		PBX recall function(R key select)		NO OPERATION		FLASH			
	5		No. 5	0		1		1	
	6		No. 6	0		1		1	
		PBX select		ID		FLASH			OPTION
	7		No. 7	0		1		0	
	8		No. 8	0		1		0	
SW I B4	1	Dial pausing(sec/pause)	4 sec				2 sec	1	
	2	Dial mode	Tone				Pulse	1	
	3	Pulse → Tone change function by ✳ key	Enable				Disable	1	
	4	Dial pulse make/break ratio(%)	40/60				33/67	1	
		Auto dial mode Delay timer of before line		0 second	1.5 seconds	3.0 seconds	4.5 seconds		
	5	connect	No. 5	0	0	1	1	0	
	6		No. 6	0	1	0	1	1	
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function								Initial setting	Remarks
			1					0				
SW I B5		Auto dial mode Delay timer of after line		1.7s	2.0s	2.5s	3.0s	3.6s	4.0s	5.5s	7.0s	
	1	connect	No. 1	0	0	0	0	1	1	1	1	1
	2		No. 2	0	0	1	1	0	0	1	1	0
	3		No. 3	0	1	0	1	0	1	0	1	1
	4	Fax signal detection after telephone mode dial	Yes					No				0	
	5	Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal	Yes					No				0	
	6	Reserved										0	
	7	Reserved										0	
	8	Reserved										0	
SW I B6	1	DTMF signal transmission level	Binary input									1
	2	(Low frequency 0~15.5dBm setting	No. =	16	8	4	2	1				0
	3	by 0.5dBm step)		1	2	3	4	5				0
	4			1	0	0	0	1				0
	5											1
	6	Reserved										0
	7	Reserved										0
	8	Reserved										0
SW I B7	1	DTMF signal transmission level	Binary input									0
	2	(High frequency 0~15.5dBm setting	No. =	16	8	4	2	1				1
	3	by 0.5dBm step)		1	2	3	4	5				1
	4			0	1	1	0	0				0
	5											0
	6	Reserved										0
	7	Reserved										0
	8	Reserved										0
SW I C1		Reading Slice(Binary)		Factory setting		Dark		Light		Daker in dark		
	1		No. 1	0		0		1		1		0
	2		No. 2	0		1		0		1		0
		Reading Slice(Half tone)		Factory setting		Dark		Light		Daker in dark		
	3		No. 3	0		0		1		1		0
	4		No. 4	0		1		0		1		0
	5	Line density selection	Fine					Standard				0
	6	Reserved										0
	7	MTF correction in half tone mode	No					Yes				0
	8	Reserved										0
SW I D1	1	Number of rings for auto receive	Binary input									0
	2	(0~15rings setting)	No. =	8	4	2	1					0
	3			1	2	3	4					1
	4			0	0	1	0					0
	5	Automatic swiching manual to auto receive function	Yes					No				0
		CI detect frequency		As PTT		11.5Hz		13.0Hz		20.0Hz		
	6		No. 6	0		0		1		1		0
	7		No. 7	0		1		0		1		0
	8	Reserved										0

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting	Remarks
			1	0		
SW I D2	1	Reserved			0	
	2	Reserved			0	
	3	Reserved			0	
	4	Reserved			0	
	5	Reserved			0	
	6	Caller ID function	Yes	No	0	OPTION
	7	Reserved			0	
	8	Reserved			0	
SW I D3	1	CI off detection timer	Binary input		0	
	2	(0~1550ms setting by 50ms step)	No. = 16 8 4 2 1		1	
	3		1 2 3 4 5		1	
	4		0 1 1 1 0		1	
	5				0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	
SW I D4	1	DTMF type Caller ID RX level	Binary input		1	
	2	(0~-44dBm setting by 1dBm step)	No. = 32 16 8 4 2 1		0	
	3		1 2 3 4 5 6		1	
	4		1 0 1 1 0 0		1	
	5				0	
	6				0	
	7	Reserved			0	
	8	Reserved			0	

SW NO.	DATA NO.	ITEM		9sec	15sec	30sec	60sec	90sec	120sec	150sec	180sec	Initial setting	Remarks
SW I E1		Pseudo ringing time at the TEL/FAX											
	1	automatic switching mode	No. 1	0	0	0	0	1	1	1	1	0	
	2		No. 2	0	0	1	1	0	0	1	1	1	
	3		No. 3	0	1	0	1	0	1	0	1	0	

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting	Remarks
			1	0		
SW I E1	4	Number of CNG signal detection at the TEL/FAX automatic switching mode	Twice	Once	1	
	5	CNG detect time at TEL/FAX mode	3 sec	5 sec	0	
	6	Post answer tone(TEL/FAX mode)	No	Yes	1	
	7	Type of post answer tone	LA-SI-DO tone	800Hz single tone	0	
	8	Pseudo ringer ON/OFF cycle	1 sec ON / 4 sec OFF	1 sec ON / 2 sec OFF	1	
SW I E2	1	Pseudo ringer sound output level to the line	Binary input		1	
	2	(0~-15dBm setting by 1dBm step)	No. = 8 4 2 1		0	
	3		1 2 3 4		1	
	4		1 0 1 0		0	
		Post answer tone transmission level	Binary input			
	5	(0~-15dBm setting by 1dBm step)	No. = 8 4 2 1		1	
	6		5 6 7 8		0	
	7		1 0 0 1		0	
	8				1	

SW NO.	DATA NO.	ITEM		No Action	No Action	A.M. Remote operation	Disconnect line	Initial setting	Remarks
SW I E3	1	Reserved						0	
		Action select when DTMF "#" is received during phone/fax automatic switching mode							
	2		No. 2	0	0	1	1	0	
	3		No. 3	0	1	0	1	0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1			0			
SW I F1		DTMF detection time		50ms	80ms	100ms	120ms		
	1		No. 1	0	0	1	1	0	
	2		No. 2	0	1	0	1	0	
	3	Protection of remote reception(5 ✳ ✳) detection	Yes			No		0	
	4	Remote reception with GE telephone	Compatible			Not compatible		1	
	5	Remote operation code figure by external	Binary input					0	OPTION
	6	TEL (0~9)	No. = 8 4 2 1					1	
	7		5 6 7 8					0	
	8		0 1 0 1					1	
SW I F2	1	CNG detection in STAND-BY mode	Yes			No		1	OPTION
		Number of CNG detect(AM mode)		1 pulse	2 pulses	3 pulses	4 pulses		
	2		No. 2	0	0	1	1	0	
	3		No. 3	0	1	0	1	1	
		Number of CNG detect(STAND-BY mode)		1 pulse	2 pulses	3 pulses	4 pulses		
	4		No. 4	0	0	1	1	0	
	5		No. 5	0	1	0	1	1	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I G1	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I G2	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I G3	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I G4	1	Quiet detect level setting	Binary input					1	
	2	(0~-44dBm setting by 1dBm step)	No. = 32 16 8 4 2 1					0	
	3		1 2 3 4 5 6					1	
	4		1 0 1 1 0 0					1	
	5							0	
	6							0	
	7	Fax switching when A.M. full	Yes			No		0	OPTION
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1				0		
SW I H1	1	Busy tone continuous sound detect time	5sec				10sec	1	
	2	Busy tone detect continuation sound detect during OGM	No				Yes	1	
	3	Busy tone detect continuation sound detect	No				Yes	0	
	4	Busy tone detect intermittent sound detect during OGM	No				Yes	1	
	5	Busy tone detect intermittent sound detect	No				Yes	0	
		Busy tone detection pulse number		2pulses	4pulses	6pulses	10pulses		
	6		No. 6	0	0	1	1	0	
	7		No. 7	0	1	0	1	1	
	8	Reserved						0	
SW I H2	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I1		ICM recording time		4min	15s	30s	60s		OPTION
	1		No. 1	0	0	1	1	0	
	2		No. 2	0	1	0	1	0	
		A.M. Quiet time 1		2s	3s	4s	5s		
	3		No. 3	0	0	1	1	0	
	4		No. 4	0	1	0	1	0	
		A.M. Quiet time 2		0s	1s	2s	3s		
	5		No. 5	0	0	1	1	1	
	6		No. 6	0	1	0	1	0	
	7	Key input buzzer on/off switch (Two way recording mode)	On				Off	0	
	8	Reserved						0	
SW I I2		A.M. Quiet detect time	Binary input						
	1		No. = 16	8	4	2	1	0	
	2		1	2	3	4	5	0	
	3		0	0	1	1	0	1	
	4							1	
	5							0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I3	1	Two way alarm	Yes				No	1	
	2	Max OGM record time	15s				60s	0	
	3	Two way record function	Disable				Enable	0	
	4	Toll saver	Disable				Enable	0	OPTION
	5	FAX reception in case of detecting No sound detect after ICM recording	Yes				No	1	
	6	Reserved						0	
	7	Reserved						0	
	8	Transfer dial recall	Disable				Enable	0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1				0		
SW I I4		AGC Maximum Gain (line) 10~25dB (1dB step)	Binary input						
	1		No. =	8	4	2	1	1	
	2			1	2	3	4	1	
	3			1	1	0	0	0	
	4							0	
		AGC Maximum Gain (mic) 10~25dB (1dB step)	Binary input						
	5		No. =	8	4	2	1	1	
	6			5	6	7	8	1	
	7			1	1	1	1	1	
	8							1	
SW I I5		AGC Eref access code (line) -0~-30dB (2dB step)	Binary input						
	1		No. =	8	4	2	1	1	
	2			1	2	3	4	1	
	3			1	1	0	1	0	
	4							1	
		AGC Eref access code (mic) -0~-30dB (2dB step)	Binary input						
	5		No. =	8	4	2	1	1	
	6			5	6	7	8	1	
	7			1	1	1	1	1	
	8							1	
SW I I6		AGC Gain Adaptation Threshold (line)	Binary input						
	1		No. =	8	4	2	1	1	
	2			1	2	3	4	1	
	3			1	1	1	1	1	
	4							1	
		AGC Gain Adaptation Threshold (mic)	Binary input						
	5		No. =	8	4	2	1	1	
	6			5	6	7	8	1	
	7			1	1	1	1	1	
	8							1	
SW I I7		AGC Slew Rate (line)		Slow	Normal	Little fast	Fast		
	1		No. 1	0	0	1	1	0	
	2		No. 2	0	1	0	1	1	
		AGC Slew Rate (mic)		Slow	Normal	Little fast	Fast		
	3		No. 3	0	0	1	1	0	
	4		No. 4	0	1	0	1	1	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I8		OGM/ICM output level (0~-31dBm setting by	Binary input						
	1	1dBm step)	No. =	16	8	4	2	1	0
	2			1	2	3	4	5	0
	3			0	0	1	0	1	1
	4								0
	5								1
	6	AM OGM announce only mode	Yes				No		0	OPTION
	7	Reserved							0	
	8	Reserved							0	

SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting	Remarks
			1			0				
SW I J1	1	Sender's phone number setting	Cannot change			Change allowed			0	
	2	Summer time	No			Yes			0	
		Ringer volume		Off	Low	Middle	High			OPTION
	3		No. 3	0	0	1	1		1	
	4		No. 4	0	1	0	1		0	
	5	Reserved							0	
	6	Reserved							0	
	7	Polling key	Yes			No			0	OPTION
	8	Reserved							0	
SW I J2	1	Reserved							0	
	2	Reserved							0	
		Speaker volume		Very Low	Low	Middle	High	Very High		OPTION
	3		No. 3	0	0	0	0	1	0	
	4		No. 4	0	0	1	1	0	1	
	5		No. 5	0	1	0	1	0	0	
	6	Speaker monitor function	Yes			No			1	
	7	Saving energy start timing	5sec			180sec			0	
	8	Saving energy mode	Enable			Disable			1	
SW I J3		Communication results printout (Transaction report)		Error	Send only	Always	No print			OPTION
	1		No. 1	0	0	0	0		0	
	2		No. 2	0	0	1	1		0	
	3		No. 3	0	1	0	1		0	
	4	Time format	12 hour			24 hour			0	
	5	Date format	Month-Day-Year			Day-Month-Year			0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	
SW I K1	1	Entering diag mode by pressing SPEED key	Yes			No			0	
	2	Reserved							0	
	3	Reserved							0	
	4	Reserved							0	
	5	Reserved							0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	

• Soft switch function description

SW-A1 No. 1 Protect from echo

Used to protect from echo in reception.

SW-A1 No. 2 Forced 4800BPS reception

When line conditions warrant that receptions take place at 4800 BPS repeatedly.
It may improve the success of receptions by setting at 4800BPS.
This improves the receiving document quality and reduces handshake time due to fallback during training.

SW-A1 No. 3 Footer print

When set to "1", the date of reception, the sender machine No., and the page No. are automatically recorded at the end of reception.

SW-A1 No. 4 Length limitation of copy/send/receive

Used to set the maximum page length.
To avoid possible paper jam, the page length is normally limited to 0.6 meter for copy or transmit, and 1.5 meters for receive.
It is possible to set it to "No limit" to transmit a long document, such as a computer print form, etc. (In this case, the receiver must also be set to no limit.)

SW-A1 No. 5 CSI transmission

(CSI TRANSMISSION) is a switch to set whether the machine sends or does not send the signal (CSI signal) informing its own telephone No. to the remote fax machine when information is received. When "nonsending" is set, the telephone No. is not output on the remote transmitting machine if the remote transmitting machine has the function to display or print the telephone No. of receiving machine, using this CSI signal.

SW-A1 No. 6 DIS receive acknowledgment during G3 transmission

Used to make a choice of whether reception of DIS(NSF) is acknowledged after receiving two DISs(NSFs) or receiving one DIS (two NSFs). It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 7 Non modulated carrier for V29 transmission mode

Though transmission of a nonmodulated carrier is not required for transmission by the V29 modem according to the CCITT Recommendation, it may be permitted to a send nonmodulated carrier before the image signal to avoid an echo suppression problem.
It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 8 Reserved

Set to "0".

SW-A2 No. 1 ~ No. 4 Modem speed

Used to set the initial modem speed. The default is 9600BPS.
It may be necessary to program it to a slower speed when frequent line fallback is encountered, in order to save the time required for fallback procedure.

SW-A2 No. 5 Reserved

Set to "0".

SW-A2 No. 6 H2 mode

Used to determine reception of H2 mode (15 sec transmission mode). When set to OFF, H2 mode reception is inhibited even though the transmitting machine has H2 mode function.

SW-A2 No. 7 Communication error treatment in RTN sending mode (Reception)

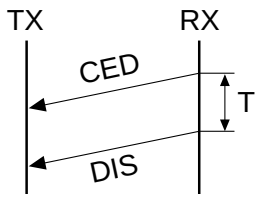
Used to determine communication error treatment when RTN is sent by occurrence of a received image error in G3 reception. When it is set to "1", communication error is judged as no error.

SW-A2 No. 8 CNG transmission

When set to "0", this model allows CNG transmission by pressing the Start key in the key pad dialing mode. When set to "1", CNG transmission in the key pad dialing mode cannot be performed. In either case, CNG transmission can be performed in the auto dial mode.

SW-A3 No. 1, No. 2 CED tone signal interval

For international communication, the 2100Hz CED tone may act as an echo suppression switch, causing a communication problem.
Though SW-A3 No. 1 and No. 2 are normally set to 0, this selfing is used to change the time between the CED tone signal to eliminate the communication caused by echo.



SW-A3 No. 3 MR coding

Used to select the MR coding enable or disable.

SW-A3 No. 4 ~ No. 8 Reserved

Set to "0".

SW-A4 No. 1 ~ No. 5 Signal transmission level (0~-31 dBm setting by 1dBm step)

Used to control the signal transmission level in the range of -0dB to -31dB.
The factory setting is at -11dB(HK), -9dB(SG) (MODEM output).

SW-A4 No. 6 Protocol monitor (Error Print)

If set to "1", protocol is printed at communication error.

SW-A4 No. 7 Protocol monitor

Normally set to "0". If set to "1", communication can be checked, in case of trouble, without using a G3 tester or other tools.
When communication FSK data transmission or reception is made, the data is taken into the buffer. When communication is finished, the data is analyzed and printed out. When data is received with the line monitor (SW4-No. 8) set to "1" the reception level is also printed out.

SW-A4 No. 8 Line monitor

Normally set to "0". If set to "1", the transmission speed and the reception level are displayed on the LCD. Used for line tests.

SW-A5 No. 1, No. 2 Digital equalization setting (Reception)

Line equalization when reception is to be set according to the line characteristics.
Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 3, No. 4 Digital equalization setting (Transmitter)

Line equalization when transmission is to be set according to the line characteristics.
Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 5, No. 6 Digital equalization setting (Reception for Caller ID)

Line equalization when reception for CALLER ID is to be set according to the line characteristics.
Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 7 Error criterion

Used to select error criterion for sending back RTN when receiving image data.

SW-A5 No. 8 Anti junk fax check

When using the Anti junk fax function, set to "1".

SW-A6 No. 1 Auto gain control(MODEM)

When this mode is enabled, if the reception signal level is under 31dBm, the modem itself controls the signal gain automatically.

SW-A6 No. 2 End buzzer

Setting this bit to 0 will disable the end buzzer (including the error buzzer/ on-hook buzzer).

SW-A6 No. 3 Disconnect the line when DIS is received in RX mode

Bit1 = 0 : When DIS signal is received during RX mode, disconnect the line immediately.
Bit1 = 1 : When DIS signal is received during RX mode, wait for the next signal.

SW-A6 No. 4 Equalizer freeze control (MODEM)

This switch is used to perform reception operation by fixing the equalizer control of modem for the line which is always in unfavorable state and picture cannot be received.
* Usually, the control is executed according to the state of line where the equalizer setting is changed always.

SW-A6 No.5 Equalizer freeze 7200BPS only

Setting which specifies SW-A6 No. 4 control only in condition of 7200BPS modem speed.

SW-A6 No. 6 CNG transmission in manual TX mode

When set to "1", fax transmit the CNG signal in case of manual transmissiom mode (User press the START key after waiting for the fax answering signal from handset or speaker).

SW-A6 No. 7 Initial compression scheme for sharp fax in TX mode

When set to "0", if the other fax is Sharp model, fax transmit the document by H2 mode.
When set to "1", even if the other fax is Sharp model, fax transmit the document by MR mode.

SW-A6 No. 8 Modem speed automatic down when RX level is under -40dBm

When set to "1", if fax signal level is under -40dBm during reception, machine selects the slower modem speed automatically.
It is effective when noises occur on the received document due to the long distance communications.

SW-A7 No. 1, No. 2 EOL (End Of Line) detect timer

Used to make a choice of whether to use the 5 or 13 or 20 or 25 seconds timer for detection of EOL.
This is effective to override communication failures with some facsimile models that have longer EOL detection.

SW-A7 No. 3 ~ No. 8 Reserved

Set to "0".

SW-B1 No. 1 Reserved

Set to "0".

SW-B1 No. 2 Auto dial fax transmission by REDIAL key

When set to "1", if original documents are set to the feeder and you press REDIAL key, machine will dial and transmit the ducuments automatically.
When set to "0", operator needs to press the START key after FAX reception tone is heard.

SW-B1 No. 3 Reserved

Set to "0".

SW-B1 No. 4 ~ No. 8 Recall interval (0~15.5min setting by 0.5min step)

Choice is made for a redial interval for speed and rapid dial calls.
Use a binary number to program this with 0.5min steps. If set to 0 accidentally, 0.5min will be assumed.

SW-B2 No. 1 ~ No.4 Recall times (0~15times setting)

Choice is made as to how many redials there should be.

SW-B2 No. 5 Dial tone detection (Before auto dial)

Used to set YES/NO of dial tone detection in auto dialing.

SW-B2 No. 6 Reserved

Set to "0".

SW-B2 No. 7 Busy tone detection (After auto dial)

Used to set YES/NO of busy tone detection after auto dialing.

SW-B2 No. 8 Busy tone detection pulse number (After auto dial)

Used for detection of busy tone in 2 or 4 pulses.

SW-B3 No. 1, No. 2 Waiting time after dialing

This is waiting time for the opponent's signals after dialing.
45 / 55 / 90 / 140 seconds settings are available.

SW-B3 No. 3 PBX connection

Used to select according to the connected line: PBX (Private Branch Exchange).

SW-B3 No. 4 Reserved

Set to "0".

SW-B3 No. 5, No. 6 PBX recall function (R key select)

Used to set the operation mode of PBX recall when the R key is pressed. Setting is made according to the type of PBX.

No. 5=1, No. 6=1:Time break recall (=Flash) is performed.

SW-B3 No. 7, No. 8 PBX select

Used to select the operation mode of PBX recall in auto dialing.
No. 7=1, No. 8=1:Time break recall (=Flash) is performed before dialing.

No. 7=0, No. 8=0:The PBX ID digit is automatically added when dialing to external line. PBX ID is up to 3 digits and entered in Option settings mode.

SW-B4 No. 1 Dialing pause (sec/pause)

Pauses can be inserted between telephone numbers of direct dial connection. Selection of 4 sec or 2 sec pause is available.

SW-B4 No. 2 Dial mode

When using the pulse dial, set to 0. When using the tone dial, set to 1.

SW-B4 No. 3 Pulse → Tone change function by ✳ key

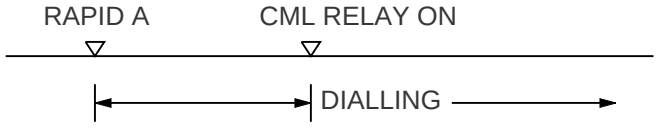
When setting to 1, the mode is changed by pressing the ✳ key from the pulse dial mode to the tone dial mode.

SW-B4 No. 4 Dial pulse make/break ratio (%)

When using the 33% make ratio pulse dial, set to 0.
When using the 40% make ratio pulse dial, set to 1.

SW-B4 No. 5, No. 6 Auto dial mode Delay timer of before line connect

Delay time between the dial key input and line connection under the auto dial mode.



No.5=0 No.6=0 : 0sec
No.5=0 No.6=1 : 1.5sec
No.5=1 No.6=0 : 3.0sec
No.5=1 No.6=1 : 4.5sec

SW-B4 No. 7, No. 8 Reserved

Set to "0".

SW-B5 No. 1 ~ No. 3 Auto dial mode Delay timer of after line connect

Delay time between the line connection and dial data output under the auto dial mode.
This setting is available when dial tone detection(SW-B2 No. 5) is set to "NO".

No. 1	No. 2	No. 3	
0	0	0	1.7sec
0	0	1	2.0sec
0	1	0	2.5sec
0	1	1	3.0sec
1	0	0	3.6sec
1	0	1	4.0sec
1	1	0	5.5sec
1	1	1	7.0sec

SW-B5 No. 4 Fax signal detects after telephone mode dial

When set to "1", if machine detects the fax answering signal after telephone calling (handset off-hook or speaker mode dial), machine starts to receive the documents automatically.

SW-B5 No. 5 Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal

When set to "1", if machine does not detect the busy tone after auto dialing and dialing is unsuccessful, machine will try to recall only one time.

SW-B5 No. 6 ~ No. 8 Reserved

Set to "0".

SW-B6 No. 1 ~ No. 5 DTMF signal transmission level (Low frequency 0~15.5dBm setting by 0.5dBm step)

The transmission level of DTMF signal is adjusted. (lower frequency)

00000: 0dBm

↓

11111: -15.5 dBm (-0.5dBm x 31)

SW-B6 No. 6 ~ No. 8 Reserved

Set to "0".

SW-B7 No. 1 ~ No. 5 DTMF signal transmission level (High frequency 0~15.5dBm setting by 0.5dBm step)

The transmission level of DTMF signal is adjusted. (higher frequency)

00000: 0dBm

↓

11111: -15.5 dBm (-0.5dBm x 31)

SW-B7 No. 6 ~ No. 8 Reserved

Set to "0".

SW-C1 No. 1, No. 2 Reading slice (Binary)

Used to determine the set value of reading density in standard/fine/super-fine mode.
The standard setting is "00"(Factory setting is "00").

SW-C1 No. 3, No. 4 Reading slice (Half tone)

Used to determine the set value of reading density in half tone mode.
The standard setting is "00"(Factory setting is "00").

SW-C1 No. 5 Line density selection

Used to set the transmission mode which is automatically selected when the Resolution key is not pressed. In the copy mode, however, the fine mode is automatically selected unless the Resolution key is manually set to another mode.

SW-C1 No. 6 Reserved

Set to "0".

SW-C1 No. 7 MTF correction in half tone mode

This allows selection of MTF correction (dimness correction) in the half tone mode.
When "NO" (=1) is selected, the whole image becomes soft and mild. Clearness of characters will be reduced. Normally set to "YES" (=0).

SW-C1 No. 8 Reserved

Set to "0".

SW-D1 No.1 ~ No. 4 Number of rings for auto receive (0~15rings setting)

When the machine is set in the auto receive mode, the number of rings before answering can be selected. It may be set from one to nine rings using a binary number. Since the facsimile telephone could be used as an ordinary telephone if the handset is taken off the hook, it should be programmed to the user's choice. If the soft switch was set to 1, direct connection is made to the facsimile.
If a facsimile calling beep was heard when the handset is taken off the hook, press the START key and put the handset on the hook to have the facsimile start receiving. If it was set to 0 accidentally, receive ring is set to 1.

NOTE: If the machine is set to answer after a large number of rings, it may not be able to receive faxes successfully.
If you have difficulty receiving faxes, reduce the number of rings to a maximum of 5.

SW-D1 No. 5 Automatic switching manual to auto receive function

This soft switch is used to select whether the machine should switch to the auto receive mode after 5 rings in the manual receive mode or remain in the same way as SW-D1 No. 1, No. 2, No. 3 and No. 4 "0"1"0"1"(5 rings).

SW-D1 No. 6, No. 7 CI detect frequency

Detection frequency of ring signal for auto reception is set.

When set to No. 6=0, No. 7=0, frequency is set to PTT recommendation.
When set to No. 6=0, No. 7=1, frequency is set to 11.5Hz or more.
When set to No. 6=1, No. 7=0, frequency is set to 13.0Hz or more.
When set to No. 6=1, No. 7=1, frequency is set to 20.0Hz or more.

SW-D1 No. 8 Reserved

Set to "0".

SW-D2 No. 1 ~ No. 5 Reserved

Set to "0".

SW-D2 No. 6 Caller ID Function

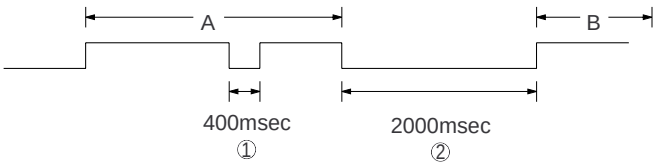
Used for Caller ID function.

SW-D2 No. 7, No. 8 Reserved

Set to "0".

SW-D3 No. 1 ~ No. 5 CI off detection timer (0~1550ms setting by 50ms step)

Set the minimum time period of CI signal interruption which affords to be judged as a CI OFF section with 50ms steps.
(Example)



0 1 1 1 0 (50ms~14) : 700ms(CI interruption>700ms:Judged as a CI OFF section)
The section 1 is not judged as a CI OFF section, the CI signal A is counted as one signal. The section 2 is judged as a CI OFF section, the CI signal B is considered as the second signal.

0 0 1 1 1 (50ms~7) : 350ms(CI interruption>350ms:J udged as a CI OFF section)
The section 1 is judged as a CI OFF section, and the CI signal A is counted as two signals. The section 2 is judged as a CI OFF section, and the CI signal B is considered as the third signal.

SW-D3 No. 6 ~ No. 8 Reserved

Set to "0".

SW-D4 No. 1 ~ No. 6 DTMF type Caller ID RX level (0~-44dBm setting by 1dBm step)

This is used for DTMF type Caller ID detection level setting.

SW-D4 No. 7, No. 8 Reserved

Set to "0".

SW-E1 No. 1 ~ No. 3 Pseudo ringing time at the TEL/FAX automatic switching mode

Choice is made as to how long to rumble the dummy ringer on TEL/FAX automatic switching mode.

SW-E1 No. 4 Number of CNG signal detection at the TEL/FAX automatic switching mode

Used for detection of CNG in one tone or two tones in the TEL/FAX automatic switching mode.

SW-E1 No. 5 CNG detect time at TEL/FAX mode

The switch which sets the time from the start of CNG detection to the end of detection.

SW-E1 No. 6 Post answer tone (TEL/FAX mode)

When set to "0", machine send the tones in TEL/FAX auto changeover mode.

SW-E1 No. 7 Type of post answer tone

When set to "0", post answer tone is 800Hz single tone.
When set to "1", post answer tone is 880Hz/988Hz/1046Hz(LA-SI-DO) tone.

SW-E1 No. 8 Pseudo ringer ON/OFF cycle

When set to "0", pseudo ringer is 1 sec ON and 2 sec OFF cycles.
When set to "1", pseudo ringer is 1 sec ON and 4 sec OFF cycles.

SW-E2 No. 1 ~ No. 4 Pseudo ringer sound output level to the line (0~-15dBm setting by 1dBm step)

Used to adjust the sound volume of pseudo ringer to the line (ring back tone) generated on selecting TEL/FAX.

SW-E2 No. 5 ~ No. 8 Post answer tone transmission level (0~-15dBm setting by 1dBm step)

Used to adjust the sound volume of post answer tone to the line generated on selecting TEL/FAX.

SW-E3 No. 1 Reserved

Set to "0"

SW-E3 No. 2, No. 3 Action select when DTMF "#" is received during phone/fax automatic switching mode

SW-E3 No. 4 ~ No. 8 Reserved

Set to "0".

SW-F1 No. 1, No. 2 DTMF detection time

Used to set detect time of DTMF (Dual Tone Multi Frequency) used in remote reception(5 ✳ ✳).
The longer the detect time is, the less the error detection is caused by noises.

SW-F1 No. 3 Protection of remote reception (5 ✳ ✳) detection

Used to set the function of remote reception (5 ✳ ✳). When set to "1", the remote reception function is disabled.

SW-F1 No. 4 Remote reception with GE telephone

"1": Compatible with TEL mode by GE

"0": Not compatible

- When sending (5 ✳ ✳) for remote reception with a GE manufactured telephone remote reception may not take place because of special specifications in their DTMF.
  To overcome this, a soft SW is provided to change the modem setting to allow for remote reception.
- If this soft SW is set to "1", other telephone sets may be adversely affected.

SW-F1 No. 5 ~ No. 8 Remote operation code figure by external TEL (0~9)

Remote operation codes can be changed from 0 through 9. If set to greater than 9, it defaults to 9. The "5 ✳ ✳ " is not changed.
Ex- 7 ✳ ✳ (Default : 5 ✳ ✳)

SW-F2 No. 1 CNG detection in STAND-BY mode

When setting to "1", the CNG signal detection function during standby stops.

SW-F2 No. 2, No. 3 Number of CNG detect (AM mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 4, No. 5 Number of CNG detect (STAND-BY mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 6 ~ No. 8 Reserved

Set to "0"

SW-G1 No. 1 ~ No. 8 Reserved

Set to "0"

SW-G2 No. 1 ~ No. 8 Reserved

Set to "0"

SW-G3 No. 1 ~ No. 8 Reserved

Set to "0"

SW-G4 No. 1 ~ No. 6 Quiet detect level setting (0~-44dBm setting by 1dBm step)

This is used to change the quiet detect level setting.

If quiet detection is difficult due to noise, reduce this setting level.

(Example)

Factory setting : 1 0 1 1 0 0 (- 44dBm)
↓
1 0 1 0 0 0 (- 40dBm)

SW-G4 No. 7 Fax switching when A.M. full

If the answering machine's memory (tape) is full and there is no response, the machine automatically switches to Fax reception.

SW-G4 No. 8 Reserved

Set to "0".

SW-H1 No. 1 Busy tone continuous sound detect time

Set detecting time busy tone for 5 seconds or 10 seconds.

SW-H1 No. 2 Busy tone detect continuation sound detect during OGM

Used to detect the continuous tone of specific frequency during OGM output.

SW-H1 No. 3 Busy tone detect continuation sound detect

Used to select detection of the continuous sound of certain frequency.

SW-H1 No. 4 Busy tone detect intermittent sound detect during OGM

Used to detect the intermittent tone of specific frequency during OGM output.

SW-H1 No. 5 Busy tone detect intermittent sound detect

Used to select detection of the intermittent sound of certain frequency.

SW-H1 No. 6, No. 7 Busy tone detection pulse number

Used to set detection of Busy tone intermittent sounds.

SW-H1 No. 8 Reserved

Set to "0".

SW-H2 No. 1 ~ No. 8 Reserved

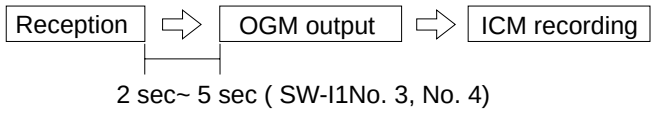
Set to "0".

SW-I1 No. 1, No. 2 ICM recording time

Used to select the incoming message recording time among 15sec/30sec/60sec/4min.

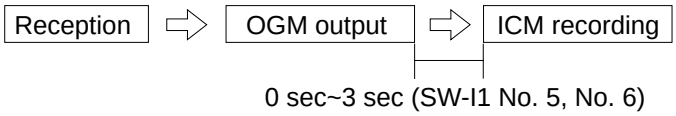
SW-I1 No. 3, No. 4 A.M. quiet time 1

Used to select four kinds of no sound time (2 sec ~ 5 sec) after reception in the T.A.D mode until OGM is output.



SW-I1 No. 5, No. 6 A.M. quiet time 2

Used to select four kinds of no sound time (0 sec ~ 3 sec) after OGM output the T.A.D mode until ICM recording is started.



SW-I1 No. 7 key input buzzer on/off switch (Two way recording mode)

Used to turn ON/OFF key input buzzer in the TWO-WAY recording mode.

SW-I1 No. 8 Reserved

Set to "0".

SW-I2 No. 1 ~ No. 5 A.M. quiet detect time

Used to set no sound time (0 sec - 32 sec) during the T.A.D. mode operation.

SW-I2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-I3 No. 1 Two way alarm

When set to "1", alarm sound is given to remote side during two way recording.

SW-I3 No. 2 Max OGM record time

Used to select the maximum OGM recording time (1=15sec, 0=60sec).

SW-I3 No. 3 Two way record function

If this switch is set to "1", machine doesn't work two way recording function.

SW-I3 No. 4 Toll saver

Used to turn on the toll saver function. If it is off, the reception frequency in the AM mode is indentical with that in the FAX mode.

SW-I3 No. 5 FAX reception in case of detecting no sound detect after ICM recording

If this switch is set to "0", machine doesn't change to FAX reception mode when detect no sound in ICM recording.

SW-I3 No. 6, No. 7 Reserved

Set to "0".

SW-I3 No. 8 Transfer dial recall

If this switch is set to "1", machine disable redial in Transfer function.

SW-I4 No. 1 ~ No. 4 AGC maximum gain (Line)
(10~25dB) (1 dB step)

The AGC Maximum Gain limits the gain applied by the AGC. Message with average energy below the AGC Energy Reference Level will have their average energy level increased by no more than the AGC Maximum Gain. The AGC Maximum Gain should average energy of the message with the lowest average energy to the AGC Energy Reference Level.

SW-I4 No. 5 ~ No. 8 AGC maximum gain (Mic)
(10~25dB) (1 dB step)

The AGC Maximum Gain limits the gain applied by the AGC. Message with average energy below the AGC Energy Reference Level will have their average energy level increased by no more than the AGC Maximum Gain. The AGC Maximum Gain should average energy of the message with the lowest average energy to the AGC Energy Reference Level.

SW-I5 No. 1 ~ No. 4 AGC eref access code (Line)
(-0~-30dB) (2 dB step)

The AGC Energy Reference Level controls the playback level. Any message having average speech energy above the energy reference level has its playback level attenuated, and any level has its playback level increased. If the playback level is too high (low), then decreasing (increasing) the AGC energy Reference level will achieve the desired level.

SW-I5 No. 5 ~ No. 8 AGC eref access code (Mic)
(-0~-30dB) (2 dB step)

The AGC Energy Reference Level controls the playback level. Any message having average speech energy above the energy reference level has its playback level attenuated, and any level has its playback level increased. If the playback level is too high (low), then decreasing (increasing) the AGC energy Reference level will achieve the desired level.

SW-I6 No. 1 ~ No. 4 AGC gain adaptation threshold (Line)

The AGC adjusts the amount of gain applied to the incoming message only when the average energy exceeds the AGC Gain Adaptation Threshold. The AGC Gain Adaptation Threshold prevents message background noise from corrupting the gain provided that the AGC Gain Adaptation Threshold is greater than the background noise energy. In the event that a message has background noise energy greater than the AGC Gain Adaptation Threshold, the AGC Gain can be no greater than the AGC Maximum Gain. Note that the AGC Gain Adaptation Threshold must always be greater than the RPACS VOX Turn-On Threshold.

SW-I6 No. 5 ~ No. 8 AGC gain adaptation threshold (Mic)

The AGC adjusts the amount of gain applied to the incoming message only when the average energy exceeds the AGC Gain Adaptation Threshold. The AGC Gain Adaptation Threshold prevents message background noise from corrupting the gain provided that the AGC Gain Adaptation Threshold is greater than the background noise energy. In the event that a message has background noise energy greater than the AGC Gain Adaptation Threshold, the AGC Gain can be no greater than the AGC Maximum Gain. Note that the AGC Gain Adaptation Threshold must always be greater than the RPACS VOX Turn-On Threshold.

SW-I7 No. 1, No. 2 AGC slew rate (Line)

The AGC Slew Rate controls the convergence of the message playback level to the desired playback level. A large slew rate will allow faster convergence and a small slew rate will allow slower convergence.

SW-I7 No. 3, No. 4 AGC slew rate (Mic)

The AGC Slew Rate controls the convergence of the message playback level to the desired playback level. A large slew rate will allow faster convergence and a small slew rate will allow slower convergence.

SW-I7 No. 5 ~ No. 8 Reserved

Set to "0".

SW-I8 No. 1 ~ No. 5 OGM/ICM output level (0~-31dBm setting by 1dBm step)

Used to control OGM and ICM output level.

SW-I8 No. 6 AM OGM announce only mode

If this switch is set to 1, the machine is not recording ICM. (disconnect the line after OGM output)

SW-I8 No. 7, No. 8 Reserved

Set to "0".

SW-J1 No. 1 Sender's phone number setting

Used to make a choice of whether the registered sender's phone number can be changed or not. If the switch is set to "1", new registration of the sender's phone number is disabled to prevent accidental wrong input.

SW-J1 No. 2 Summer time setting

Used to set YES/NO of automatic clock adjustment for Summer time.

SW-J1 No. 3, No. 4 Ringer Volume

Used to adjust ringing volume.

SW-J1 No. 5, No. 6 Reserved

Set to "0".

SW-J1 No. 7 Polling key

If this switch is set to 1, the last of Rapid key works as polling key.

SW-J1 No. 8 Reserved

Set to "0".

SW-J2 No. 1, No. 2 Reserved

Set to "0".

SW-J2 No. 3 ~ No. 5 Speaker Volume

Used to adjust sound volume from a speaker.

SW-J2 No. 6 Speaker monitor function

Used to select whether to make the speaker monitor function valid or not.

SW-J2 No. 7 Saving energy start timing

Used to set the time between the machine's stand-by state (clock indication) after operation and saving energy mode.
It is possible to set the time to either 5 sec or 180 sec (default).

SW-J2 No. 8 Saving energy mode

Used to select whether to make the saving energy mode valid or not.

SW-J3 No. 1 ~ No. 3 Communication results printout (Transaction report)

It is possible to obtain transaction results after each communication.
Normally,the switch is set (No. 1 : 0, No. 2 : 0, No. 3 : 0) so that the transaction report is produced only when a communication error is encountered.
If No.1 was set to 0 and No. 2 to 1 and No. 3 to 0, the transaction report will be produced every time a communicaion is done, even if the communicaion was successful.
Setting No. 1 to 0 and No. 2 to 1 and No. 3 to 1 will disable this function. No transaction report printed.

SW-J3 No. 4 Time format

When set to "0", 24hour time format is used.
When set to "1", 12hour time format is used.

SW-J3 No. 5 Date format

When set to "0", Day-Month-Year format is used.
When set to "1", Month-Day-Year format is used.

SW-J3 No. 6 ~ No. 8 Reserved

Set to "0".

SW-K1 No. 1 Entering diag mode by pressing SPEED key

A bit which is used in the production process only. When the SPEED key is pressed, the switch is changed from the stand-by state to the diag mode.

SW-K1 No. 2 ~ No. 8 Reserved

Set to "0".

[3] Troubleshooting

Refer to the following actions to troubleshoot any of the problems mentioned in 1-4.

[1] A communication error occurs.

[2] Image distortion produced.

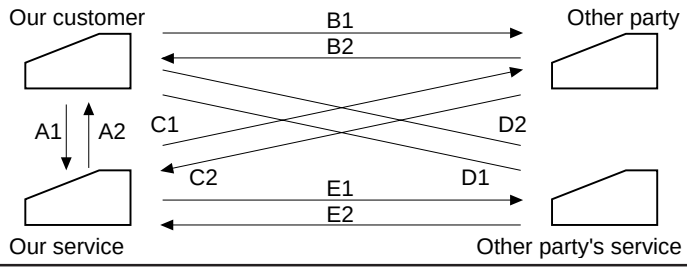
[3] Unable to do overseas communication.

[4] Communication speed slow due to FALLBACK.

- Increase the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [1] [2] [3].
- Decrease the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [3].
- Apply line equalization SOFT SWITCH A5-1, 2. May be used in case [1] [2] [3] [4].
- Slow down the transmission speed SOFT SWITCH A2-1, 2, 3, 4. May be used in case [2] [3].
- Replace the TEL/LIU PWB. May be used in all cases.
- Replace the control PWB. May be used in all cases.

* If transmission problems still exist on the machine, use the following format and check the related matters.

TO: ATT: Ref.No. :
CC: ATT: Date :
FM: Dept :
Sign :

***** Facsimile communication problem *****			Ref.No.:
From: Mr.	Fax Tel No.:		Date:
Our customer	Name		Tel No.
	Address		Fax No.
	Contact person		Model name
Other party	Name		Tel No.
	Address		Fax No.
	Contact person		Model name
Problem mode	Line: Domestic / international	Model: G3	Phase: A, B, C, D.
	Reception / Transmission	Automatic reception / Manual reception	
		Automatic dialing / Manual dialing / Others	
Frequency:	%	ROM version:	
Confirmation item			Please mark problem with an X. No problem is: 0.

A1	A2	B1	B2	C1	C2	D1	D2	E1	E2

Transmission level setting is ( ) dB at our customer

Transmission level ( ) dBm
Reception level ( ) dBm
By level meter at B1 and B2

Comment	
Countermeasure	

**** Please attach the G3 data and activity report on problem. ****

* Please complete this report before calling the "TAC" hotline if problem still occurs.

[4] Error code table

1. Communication error code table

G3 Transmission

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSF, DIS	Cannot recognize DCS signal by echo etc. Cannot recognize NSS signal (FIF code etc)
2	CFR	Disconnects line during reception (carrier missing etc)
3	FTT	Disconnects line by fall back
4	MCF	Disconnects line during reception of multi page Cannot recognize NSS, DCS signal in the case of mode change
5	PIP or PIN	The line is hung up without replying to telephone request from the receiving party.
6	RTN or RTP	Cannot recognize NSS, DCS signal after transmit RTN or RTP signal.
7	No signal or DCN	No response in receiver side or DCN signal received* (transmitter side)
8	–	Owing to error in some page the error could not be corrected although the specified number of error retransmissions were attempted.
11	–	Error occurred after or while reception by the remote (receiving) machine was revealed to be impossible.
12	–	Error occurred just after fallback.
13	–	Error occurred after a response to retransmission end command was received.

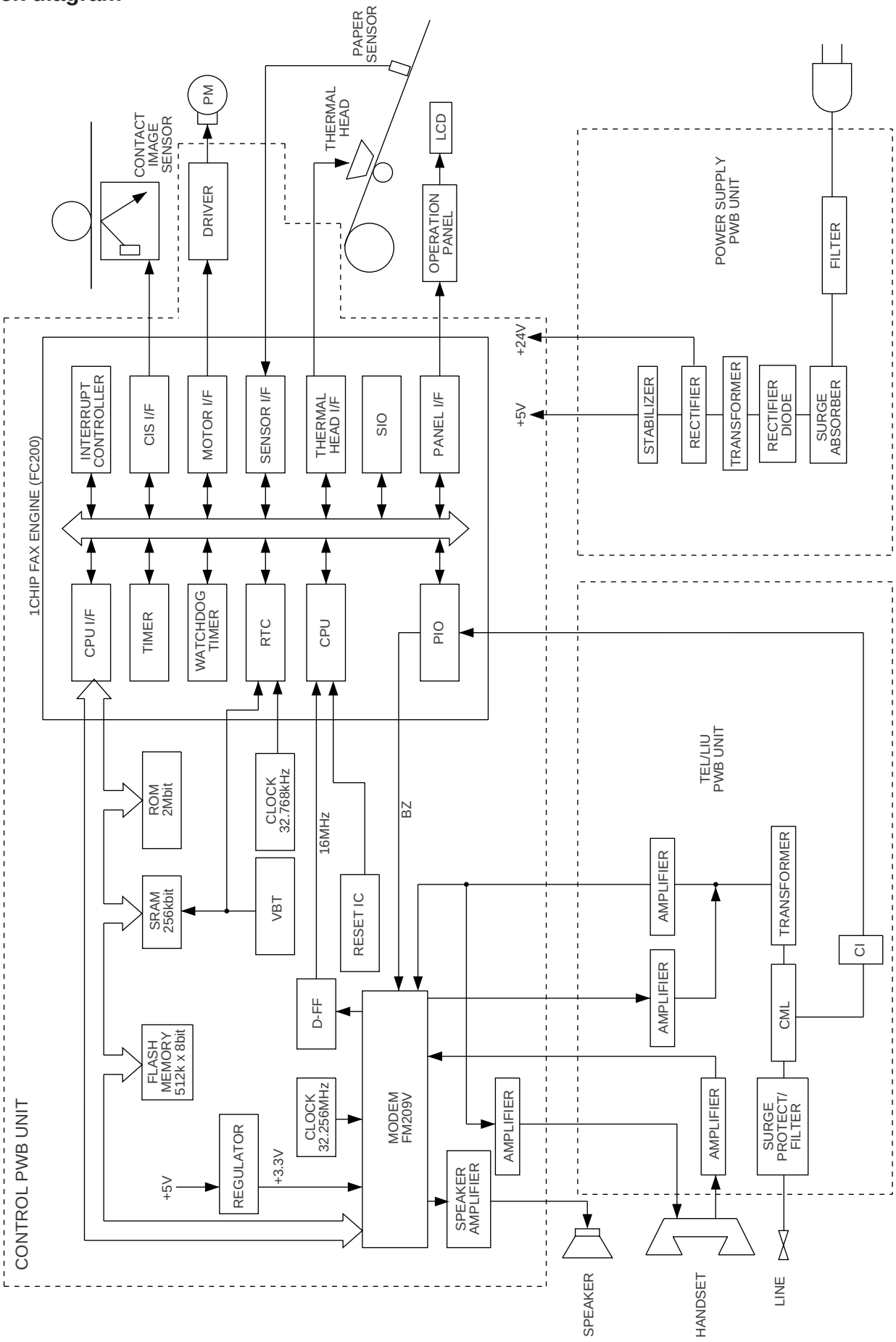
G3 Reception

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSS, DCS	Cannot recognize CFR or FTT signal Disconnects line during transmission (line error)
2	NSC, DTC	Cannot recognize NSS signal (FIF code etc)
3	EOP	Cannot recognize MCF, PIP, PIN, RTN, RTP signal
4	EOM	Cannot recognize MCF, PIP, PIN, RTN, RTP signal in the case of mode change
5	MPS	The line is hung up without replying to communication request.
6	PR1-Q	Cannot recognize PIP, PIN signal in the case of TALK request
7	No signal or DCN	No response in transmitter (cannot recognize DIS signal) or DCN signal received* (receiver side)
8	–	Error occurred upon completion of reception of all pages.
9	–	Error occurred when mode was changed or Transmission/Reception switching was performed.
10	–	Error occurred during partial page or physical page reception.
11	–	Error occurred after or during inquiry from the remote (transmitting) machine as to whether reception is possible or not.
12	–	Error occurred during or just after fallback.
13	–	Error occurred after the retransmission end command was received.

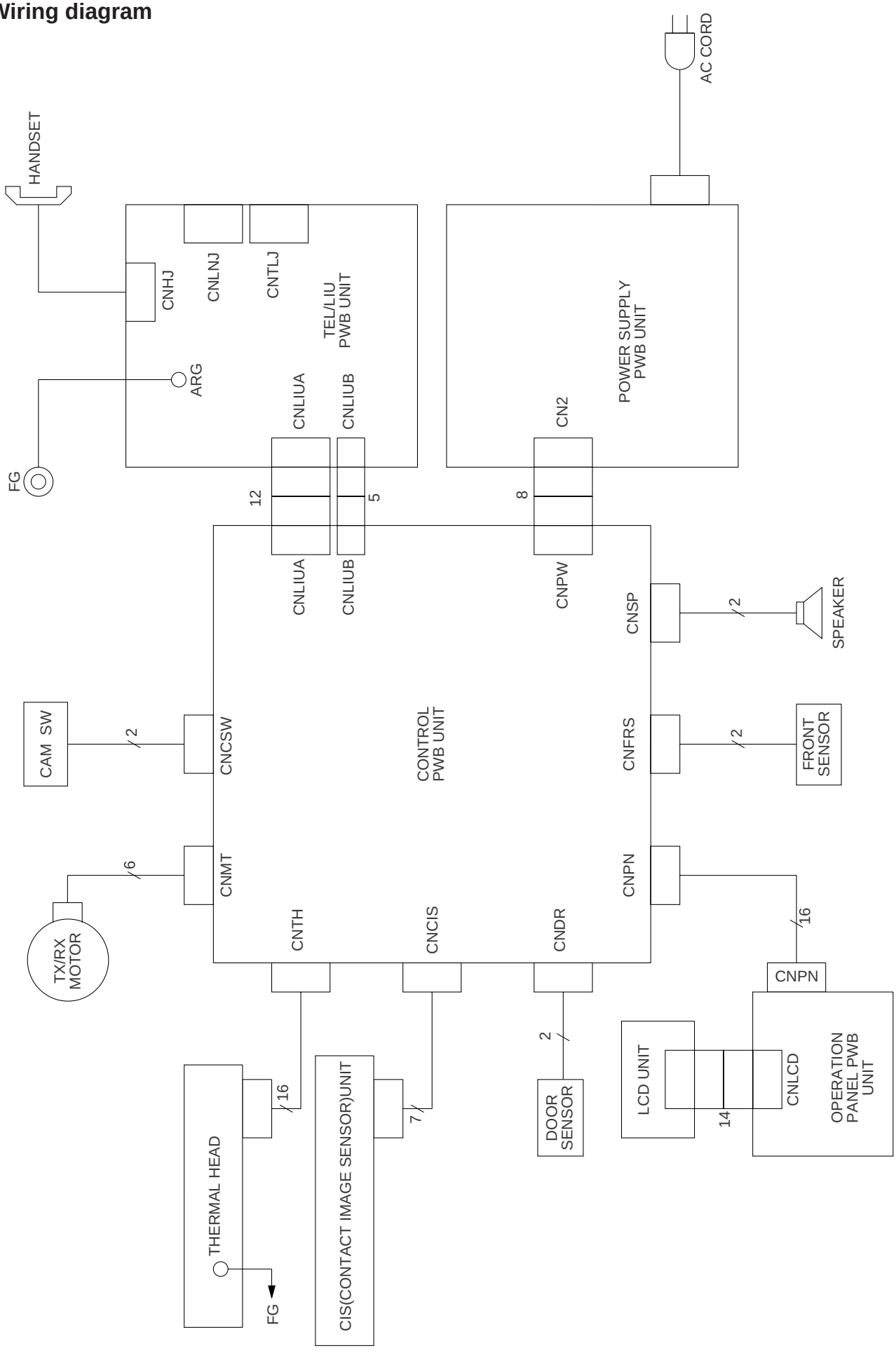
M E M O

CHAPTER 4. DIAGRAMS

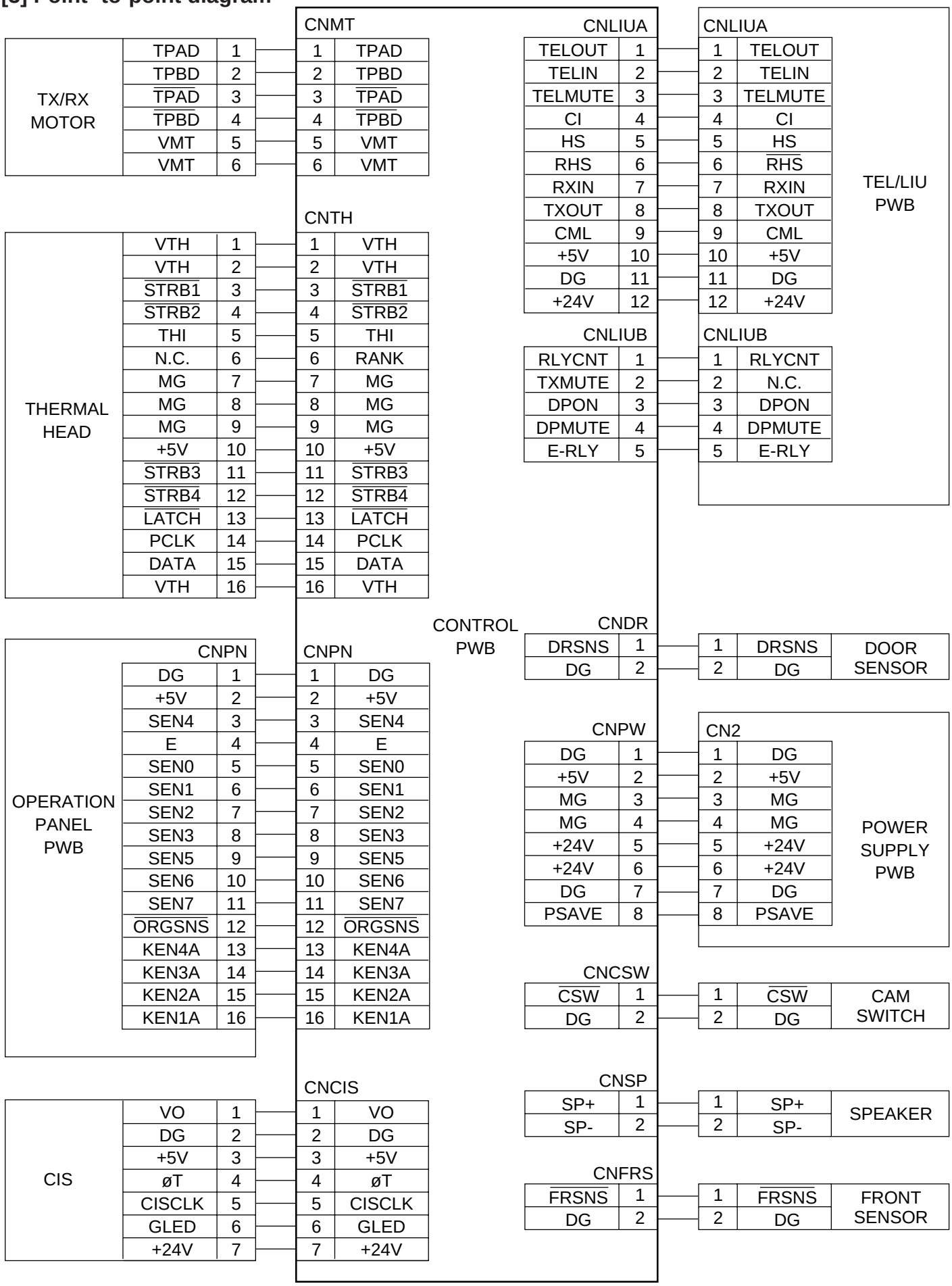
[1] Block diagram



[2] Wiring diagram



[3] Point- to-point diagram



CHAPTER 5. CIRCUIT DESCRIPTION

[1] Circuit description

1. General description

The compact design of the control PWB is obtained by using CONEXANT fax engine in the main control section and high density printing of surface mounting parts. Each PWB is independent according to its function as shown in Fig. 1.

2. PWB configuration

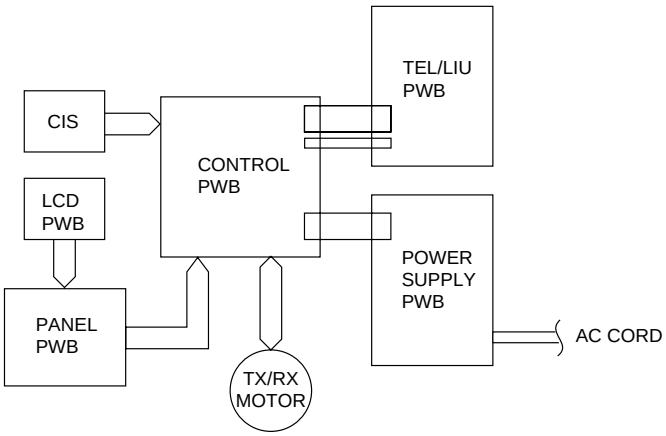


Fig. 1

1) Control PWB

The control PWB controls peripheral PWBs, mechanical parts, transmission, and performs overall control of the unit.
This machine employs a 1 chip modem (FM209V) which is installed on the control PWB.

2) TEL/LIU PWB

This PWB controls connection of the telephone line to the unit.

3) Power supply PWB

This PWB provides voltages of +5V and +24V to the other PWBs.

4) Panel PWB

The panel PWB allows input of the operation keys.

5) LCD PWB

This PWB controls the LCD display.

3. Operational description

Operational descriptions are given below:

- Transmission operation

  When a document is loaded in standby mode, the state of the document sensor is sensed via the 1 chip fax engine (FC200). If the sensor signal was on, the motor is started to bring the document into the standby position. With depression of the START key in the off-hook state, transmission takes place.
  Then, the procedure is sent out from the modem and the motor is rotated to move the document down to the scan line. In the scan processor, the signal scanned by the CIS is sent to the internal image processor and the AD converter to convert the analog signal into binary data. This binary data is transferred from the scan processor to the image buffer within the RAM and encoded and stored in the transmit buffer of the RAM. The data is then converted from parallel to serial form by the modem where the serial data is modulated and sent onto the line.

- Receive operation

  There are two ways of starting reception, manual and automatic.
  Depression of the START key in the off-hook mode in the case of manual receive mode, or CI signal detection by the LIU in the automatic receive mode.

  First, the FC200 controls the procedure signals from the modem to be ready to receive data. When the program goes into phase C, the serial data from the modem is converted to parallel form in the modem interface of the 1 chip fax engine (FC200) which is stored in the receive buffer of the RAM. The data in the receive buffer is decoded software-wise to reproduce it as binary image data in the image buffer. The data is DMA transferred to the recording processor within the FC200 which is then converted from parallel to serial form to be sent to the thermal head. The data is printed line by line by the FC200 which is assigned to control the motor rotation and strobe signal.

- Copy operation

  To make a copy on this facsimile, the COPY key is pressed when the machine is in stand-by with a document on the document table and the telephone set is in the on-hook state.

  First, depression of the COPY key advances the document to the scan line. Similar to the transmitting operation, the image signal from the CIS is converted to a binary signal in the DMA mode via the 1 chip fax engine (FC200) which is then sent to the image buffer of the RAM. Next, the data is transferred to the recording processor in the DMA mode to send the image data to the thermal head which is printed line by line. The copying takes place as the operation is repeated.

[2] Circuit description of control PWB

1. General description

Fig. 2 shows the functional blocks of the control PWB, which is composed of 5 blocks.

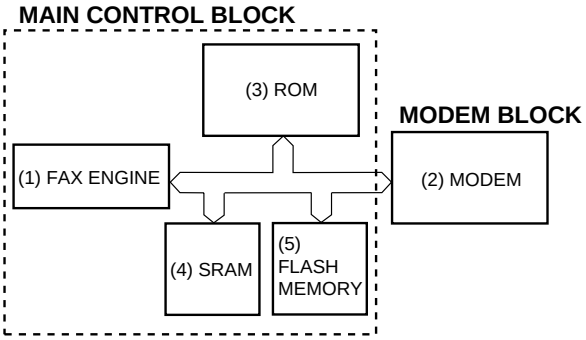


Fig. 2 Control PWB functional block diagram

2. Description of each block

(1) Main control block

The main control block is composed of CONEXANT 1 chip fax engine (FC200), ROM (2Mbit), SRAM (256kbit), FLASH MEMORY (512k × 8 bit) and Modem (FM209V).
Devices are connected to the bus to control the whole unit.

1) FC200 (IC3) : pin-144 QFP (FAX ENGINE)

2) FM209V (IC5) : pin-128 QFP (MODEM)

The FAX ENGINE Integrated Facsimile Controllers.

FC200, contains an internal 8 bit microprocessor with an external 16 Mbyte address space and dedicated circuitry optimized for facsimile image processing and facsimile machine control and monitoring.

3) 27C2000 (IC10): pin-32 DIP (ROM)

ROM of 2 Mbit equipped with software for the main CPU.

4) W24258S-70LE (IC6): pin-28 SOP (SRAM)

Line memory for the main CPU system RAM area and coding/decoding process. Used as the transmission buffer.

Memory of recorded data such as daily report and auto dials. When the power is turned off, this memory is backed up by the lithium battery.

5) KM29W040T (IC4): pin-44 TSOP (FLASH MEMORY)

A 512k × 8 bit NAND FLASH MEMORY to store the voice and image data when using memory functions.

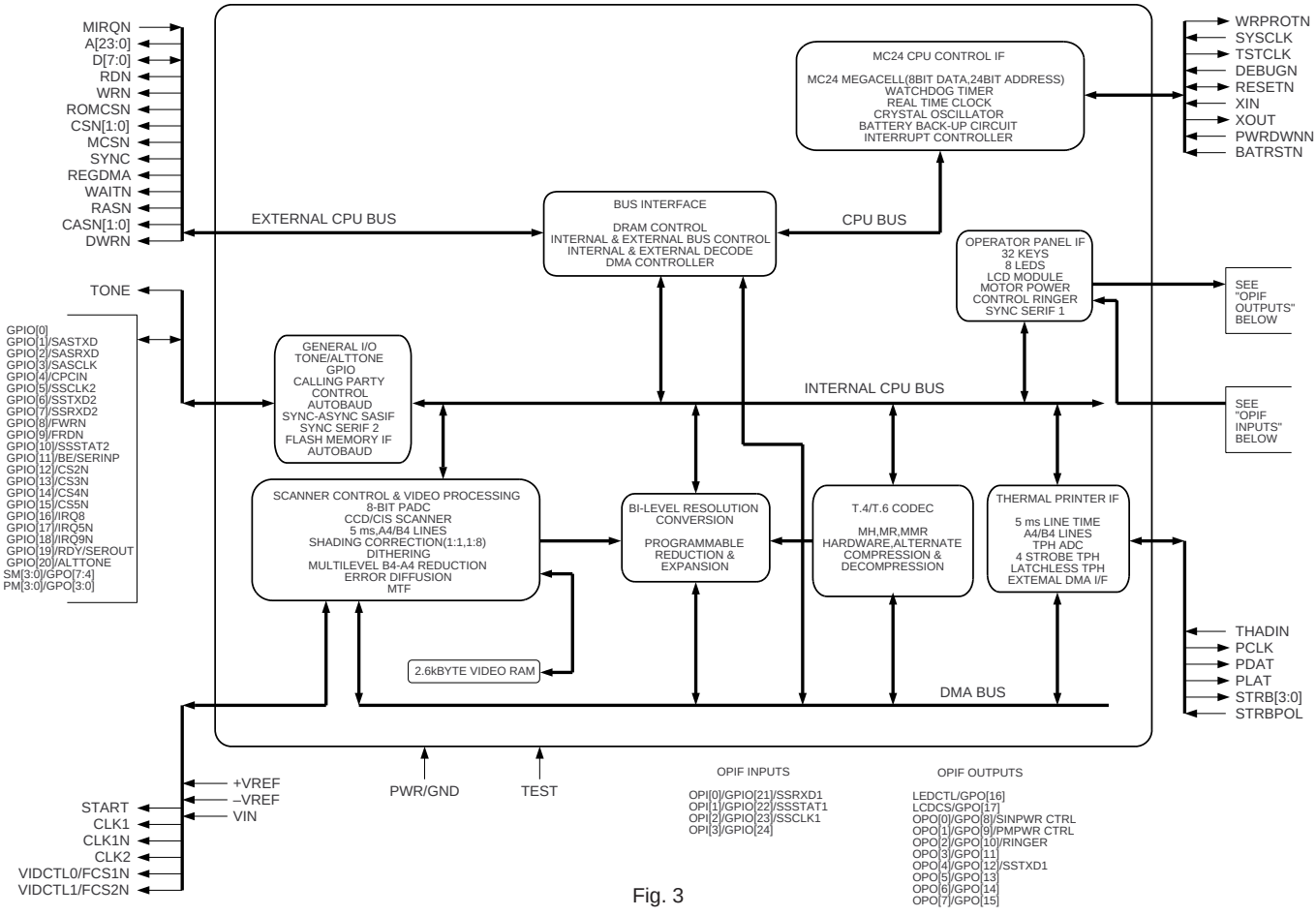


Fig. 3

FC200 (IC3) Terminal descriptions

Pin Name	Pin No.	I/O	Input Type	Output Type	Pin Description (Note: Active low signals have an "n" pin name ending.)
CPU Control Interface					
MIRQn	135	I	HU	–	Modem interrupt, active low. (Hysteresis In, Internal Pullup.)
SYSCLK	133	I	H	–	System clock. (Hysteresis In.)
TSTCLK	130	O	–	123XT	Test clock.
Bus Control Interface					
A[23:0] [15:20][22:27]	[1:6][8:13]	O	TU	123XT	Address bus (24-bit).
D[7:0] [141:144]	[136:139]	I/O	TU	123XT	Data bus (8-bit).
RDn	128	O	–	123XT	Read strobe.
WRn	127	O	–	123XT	Write strobe.
ROMCSn	120	O	–	123XT	ROM chip select.
CS1n	122	O	–	123XT	I/O chip select.
CS0n	57	O	–	123XT	SRAM chip select. (Battery powered.)
MCSn	121	O	–	123XT	Modem chip select.
SYNC	126	O	–	123XT	Indicates CPU op code fetch cycle (active high).
REGDMA	124	O	–	123XT	Indicates REGSEL cycle and DMA cycle.
WAITn	125	O	–	123XT	Indicates current TSTCLK cycle is a wait state or a halt state.
RASn	113	O	–	123XT	DRAM row address select. (Battery powered.)
CAS[1:0]n	[111:112]	O	–	123XT	DRAM column address select. (Battery powered.)
DWRn	109	O	–	123XT	DRAM write. (Battery powered.)
Prime Power Reset Logic and Test					
DEBUGn	129	I	HU	–	External non-maskable input (NMI).
RESETn	131	I/O	HU	2XO	FC200 Reset.
TEST	58	I	C	–	Sets Test mode (Battery powered).
Battery Power Control and Reset Logic					
XIN	59	I	OSC	–	Crystal oscillator input pin.
XOUT	60	O	–	OSC	Crystal oscillator output pin.
PWRDWNn	62	I	H	–	Used by external system to indicate -to FC200 - loss of prime power. (Results in NMI)
BATRSTn	61	I	H	–	Battery power reset input.
WRPROTn	110	O	–	1XC	(Battery powered.) Write protect during loss of VDD power. NOTE:The functional logic is powered by battery power, but the output drive is powered by DRAM battery power.
Scanner Interface					
START	101	O	–	2XS	Scanner shift gate control.
CLK1	100	O	–	2XS	Scanner clock.
CLK1n	99	O	–	2XS	Scanner clock-inverted.
CLK2	98	O	–	2XS	Scanner reset gate control (or clock for CIS scanner).
FCS1n/VIDCTL0	96	O	–	2XT	Flash memory chip select or Video Control signal.
FCS2n/VIDCTL1	97	O	–	2XT	Flash memory chip select or Video Control signal.
Printer Interface					
PCLK/DMAACK	29	O	–	3XC	Thermal Print Head (TPH) clock, or external DMAACK.
PDAT	30	O	–	2XP	Serial printing data (to TPH).
PLAT	31	O	–	3XP	TPH data latch.
STRB[3:0]	[33:36]	O	–	1XP	Strobe signals for the TPH.
STRBPOL/DMAREQ	37	I	C	–	Sets strobe polarity, active high/low or external DMA request.
Operator Panel Interface					
OPO[0]/GPO[8]/ SMPWRCTRL	47	O	–	2XL	Keyboard/LED strobe [0] or GPO[8] or Scan Motor Power Control
OPO[1]/GPO[9]/ PMPWRCTRL	46	O	–	2XL	Keyboard/LED strobe [1] or GPO[9] or Print Motor Power Control
OPO[2]/GPO[10]/ RINGER	44	O	–	2XCT	Keyboard/LED strobe [2] or GPO[10] or RINGER
OPO[3]/GPO[11]	43	O	–	2XL	Keyboard/LED strobe [3] or GPO[11]
OPO[4]/GPO[12]/ SSTXD1	42	O	–	2XL	Keyboard/LED strobe [4] or GPO[12] or SSTXD1 (for SSIF1)
OPO[5]/GPO[13]	40	O	–	2XL	Keyboard/LED strobe [5] or GPO[13]
OPO[6]/GPO[14]	39	O	–	2XL	Keyboard/LED strobe [6] or GPO[14]
OPO[7]/GPO[15]	38	O	–	2XL	Keyboard/LED strobe [7] or GPO[15]
OPI[0]/GPIO[21]/ SSRXD1	52	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [0] or GPIO[21] or SSRXD1 (for SSIF1)
OPI[1]/GPIO[22]/ SSSTAT1	51	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [1] or GPIO[22] or SSSTAT1 (for SSIF1)

FC200 (IC3) Terminal descriptions

Pin Name	Pin No.	I/O	Input Type	Output Type	Pin Description
Operator Panel Interface					
OPI[2]/GPIO[23]/ SSCLK1	50	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [2] or GPIO[23] or SSCLK1 (for SSIF1)
OPI[3]/GPIO[24]	49	I/O	HU	2XC	(Pullup, Hysteresis In) Keyboard return [3] or GPIO[24]
LEDCTL	55	O	–	4XC	Indicates outputs OPO[7:0] are for LEDs.
LCDCS	54	O	–	1XC	LCD chip select.
General Purpose I/O					
GPIO[0]	94	I/O	H	2XC	(Hysteresis In) GPIO[0].
GPIO[1]/SASTXD	93	I/O	H	2XC	(Hysteresis In) GPIO[1] or SASTXD (for SERIF).
GPIO[2]/SASRXD	92	I/O	H	2XC	(Hysteresis In) GPIO[2] or SASRXD (for SERIF).
GPIO[3]/SASCLK	91	I/O	H	2XC	(Hysteresis In) GPIO[3] or SASCLK (for SERIF).
GPIO[4]/CPCIN	90	I/O	H	2XC	(Hysteresis In) GPIO[4] or Calling Party Control Input.
GPIO[5]/SSCLK2	89	I/O	H	2XC	(Hysteresis In) GPIO[5] or SSCLK2 (for SSIF2).
GPIO[6]/SSTXD2	87	I/O	H	2XC	(Hysteresis In) GPIO[6] or SSTXD2 (for SSIF2).
GPIO[7]/SSRXD2	86	I/O	H	2XC	(Hysteresis In) GPIO[7] or SSRXD2 (for SSIF2).
GPIO[8]/FWRn	85	I/O	H	2XC	(Hysteresis In) GPIO[8] or flash write enable signal for NAND-type flash memory.
GPIO[9]/FRDn	84	I/O	H	2XC	(Hysteresis In) GPIO[9] or flash read enable signal for NAND-type flash memory.
GPIO[10]/SSSTAT2	83	I/O	H	2XC	(Hysteresis In) GPIO[10] or SSSTAT2 (for SSIF2).
GPIO[11]/BE/ SERINP	82	I/O	H	1XC	(Hysteresis In) GPIO[11] or bus enable or serial port data input for autobaud detection.
GPIO[12]/CS[2]n	80	I/O	H	2XC	(Hysteresis In) GPIO[12] or I/O chip select [2].
GPIO[13]/CS[3]n	79	I/O	H	2XC	(Hysteresis In) GPIO[13] or I/O chip select [3].
GPIO[14]/CS[4]n	78	I/O	H	2XC	(Hysteresis In) GPIO[14] or I/O chip select [4].
GPIO[15]/CS[5]n	77	I/O	H	2XC	(Hysteresis In) GPIO[15] or I/O chip select [5].
GPIO[16]/IRQ[8]	76	I/O	H	1XC	(Hysteresis In) GPIO[16] or external interrupt 8.
GPIO[17]	75	I/O	H	1XC	(Hysteresis In) GPIO[17].
GPIO[18]/IRQ[9]n	74	I/O	H	1XC	(Hysteresis In) GPIO[18] or external interrupt 9.
GPIO[19]/RDY/ SEROUT	73	I/O	H	1XC	(Hysteresis In) GPIO[19] or ready signal or Serial port data output for autobaud detection.
GPIO[20]/ALTTONE	107	I/O	H	1XC	(Hysteresis In) GPIO[20] or ALTTONE.
Miscellaneous					
SM[3:0]/GPO[7:4]	[103:106]	O	–	1XC	Programmable: scan motor control pins or GPO pins.
PM[3:0]/GPO[3:0]	[115:118]	O	–	1XC	Programmable: print motor control pins or GPO pins.
TONE	119	O	–	1XC	Tone output signal.
Power, Reference Voltages, Ground					
-Vref/CLREF	66	I	-VR	–	Negative Reference Voltage for Video A/D or Reference Voltage for the Clamp Circuit.
ADXG	68	I	VXG	–	A/D Internal GND. (NOTE: This pin requires an external 0.22µF decoupling capacitor to ADGA.)
ADGA	69		VADG		A/D Analog Ground
ADVA	70		VADV		A/D Analog Power
ADGD	72		VADG		A/D Digital Ground
+Vref	71	I	+VR		Positive Reference Voltage for Video A/D.
VIN	67	I	VA	–	Analog Video A/D input.
THAD1	65	I	TA	–	Analog Thermal A/D input.
Power and Ground					
VSS(12)	7,21,28,45, 53,56,64,88, 95,108,132, 134				Digital Ground
VDD(8)	14,32,41,48, 81,102,123, 140				Digital Power
VBAT	63				Battery Power
VDRAM	114				DRAM Battery Power

(2) Panel control block

The following controls are performed by the FC200.

- Operation panel key scanning
- Operation panel LCD display

(3) Mechanism/recording control block

- Recording control block diagram (1)

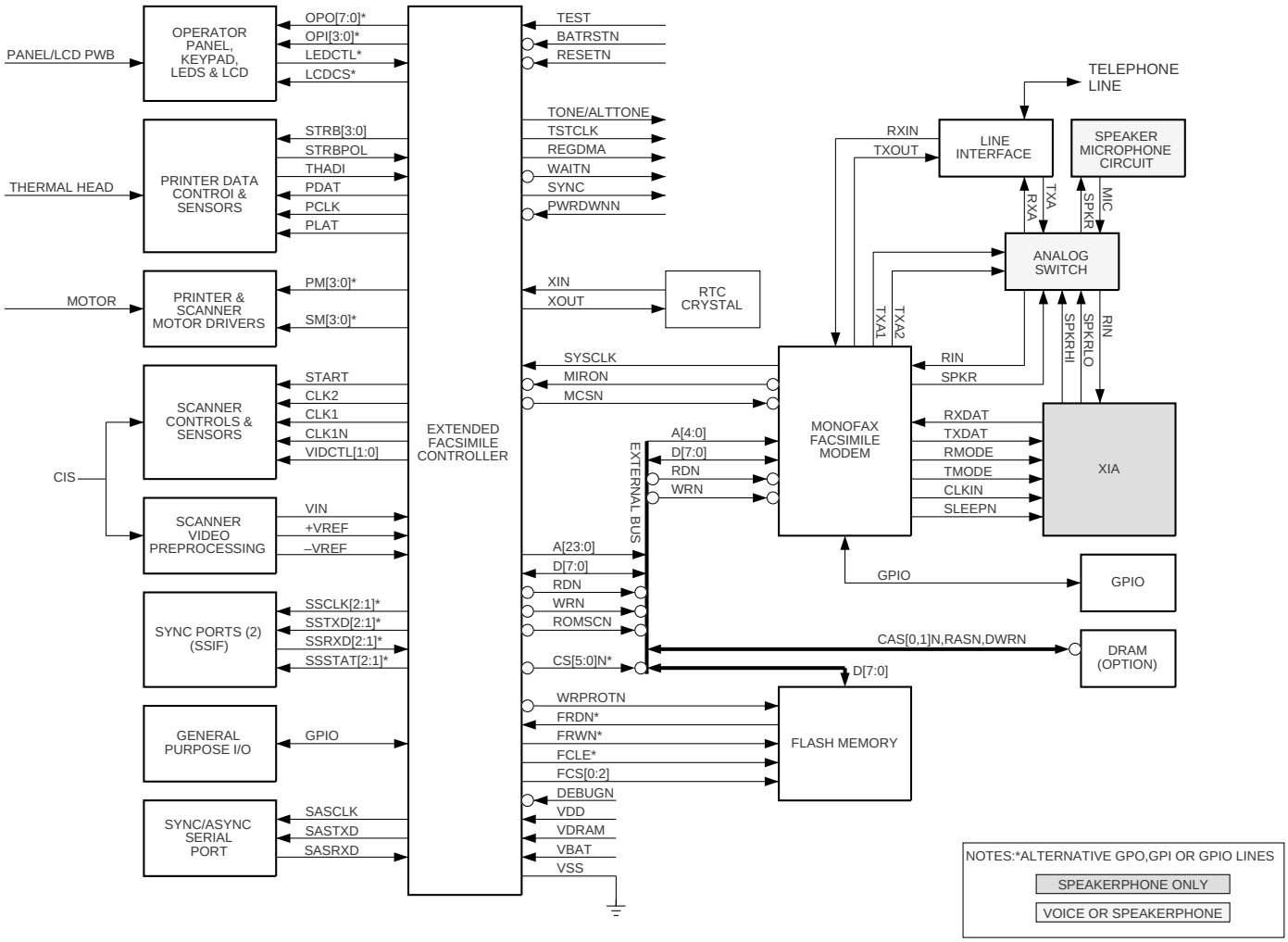


Fig. 4

(4) Modem (FM209V) block

INTRODUCTION

The CONEXANT FM209V MONOFAX modem is a synchronous 9600 bits per second (bps) half-duplex modem with error detection and DTMF reception. It has low power consumption and requires a single +5V and +3.3V DC power supply. The modem is housed in a single VLSI device package.
The modem can operate over the public switched telephone network (PSTN) through line terminations provided by a data access arrangement (DAA).
The FM209V is designed for use in Group 3 facsimile machines.
The modem satisfies the requirements specified in CCITT recommendations V.29, V.27 ter, V.21 Channel 2 and T.4, and meets the binary signaling requirements of T.30.
The modem can operate at 9600, 7200, 4800, 2400, or 300 bps, and also includes the V.27 ter short training sequence option.
The modem can also perform HDLC framing according to T.30 at 9600, 7200, 4800, 2400, or 300 bps.
The modem features a programmable DTMF receiver and three programmable tone detectors which operate concurrently with the V.21 channel 2 receiver.
The voice mode allows the host computer to efficiently transmit and receive audio signals and messages.
The modem is available in either a 128-pin plastic quad flat pack (TQFP).
General purpose input/output (GPIO) pins are available for host as signment in the 128-pin TQFP.
The modem's small size, single voltage supply, and low power consumption allow the design of compact system enclosures for use in both office and home environments.
MONOFAX is a registered trademark of CONEXANT.

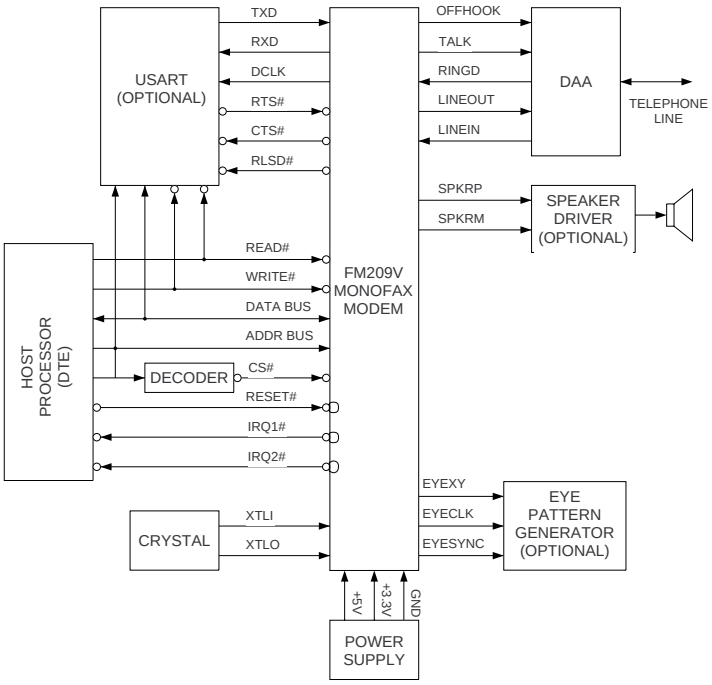


Fig. 5

FEATURES

- Group 3 facsimile transmission/reception
  - ITU-T V.29, V.27 ter, T.30, V.21 Channel 2, T.4
  - ITU-T V.17 and V.27 ter short train
  - HDLC framing at all speeds
  - Receive dynamic range: 0 dBm to -43 dBm
  - Automatic adaptive equalization
  - Fixed and programmable digital compromise equalization
  - DTMF detect and tone detect
  - ITU-T V.21 Channel 2 FSK 7E Flag Detect
  - Ring detector
  - Programmable transmits level
  - Programmable single/dual tone transmission
- V.23 and Type I Caller ID
  - Full-duplex modes:
    TX = 75 bps. RX = 1200 bps
    TX = 1200 bps. RX = 75 bps
  - Half-duplex mode:
    TX = RX = 1200 bps
  - Serial and parallel data modes
  - Programmable parallel data mode
  - 5, 6, 7 or 8 data bits
  - 1 or 2 Stop bits
  - Mark, Space, Even, or Odd Parity
  - Break function
  - Transmitter squelch
  - Compromise equalizer
- Programmable interface memory interrupt
- Eight General Purpose Input (GPI) and eight General Purpose Output (GPO) pins for host assignment
- DTE interface: two alternate ports
  - Selectable microprocessor bus (6500 or 8085)
  - ITU-T V.24 (EIA/TIA-232-E compatible) interface
- TTL and CMOS compatible
- 3.3V/5V operation
- Power consumption
  - Operating Mode: 200 mW (Basic), 275 mW (-V option). 300 mW (-VS option)
  - Sleep Mode: 1 ma (Basic. -V option and -VS option)
- Packaging
  - 128-pin TQFP (thin quad flat pack)

FM209V (IC5) Hardware Interface Signals

Pin Signals – 128-Pin TQFP

Pin No.	Signal Name	I/O Type	Pin Description
1	SR4IN/RESERVED	MI	Modem Interconnect
2	SR3OUT/RESERVED	MI	Modem Interconnect
3	EYESYNC	OA	Eye Pattern Circuit
4	EYECLK	OA	Eye Pattern Circuit
5	RXD	OA	DTE serial interface
6	SR1IO	MI	Modem Interconnect
7	NC	—	No Connection
8	EYEXY	OA	Eye Pattern Circuit
9	SR4OUT	MI	Modem Interconnect
10	VDD1	PWR	3.3V Digital Supply for DSP
11	RLSD#	OB	DTE Serial Interface
12	DCLK	OB	DTE Serial Interface
13	EN85#	IA	Host Parallel Interface
14	GPI0	IA	Host Parallel Interface
15	RTS#	IA	DTE Serial Interface
16	DGND1	GND	DSP Digital Ground
17	TXD	IA	DTE Serial Interface
18	SA1CLK	MI	Modem Interconnect
19	RS4	IB	Host Parallel Interface
20	RS3	IB	Host Parallel Interface
21	RS2	IB	Host Parallel Interface
22	RS1	IB	Host Parallel Interface
23	RS0	IB	Host Parallel Interface
24	YCLK	I	Modem Interconnect
25	IACLK	MI	Modem Interconnect
26	IA1CLK	MI	Modem Interconnect
27	CTRLSIN_S/NC	MI	Modem Interconnect
28	RESERVED/NC	MI	Modem Interconnect
29	SOUT_S/NC	MI	Modem Interconnect
30	SIN_S/NC	MI	Modem Interconnect
31	FSYNC_S/NC	MI	Modem Interconnect
32	IARESET_S#/NC	MI	Modem Interconnect
33	AGND1	GND	IA Analog Ground
34	LINEIN_S/NC	I	Line Interface
35	MICP_S/NC	I	Microphone Input
36	MICM_S/NC	I	Microphone Input
37	MICBIAS_S/NC	O	Microphone Bias Output
38	NC	—	No Connection
39	NC	—	No Connection
40	VREF_S/NC	MI	Modem Interconnect
41	VC_S/NC	MI	Modem Interconnect
42	VAA_S/NC	PWR	5V IA Analog power
43	LINEOUT_S/NC	O	Line Interface
44	NC	—	No Connection
45	AGND2	GND	IA Analog Ground
46	SPKRP_S/NC	O	Speaker Interface Output
47	SPKRM_S/NC	O	Speaker Interface Output
48	AVDD_S/NC	PWR	5V IA Digital power
49	RESERVED/NC	MI	Modem Interconnect
50	ICLK_S/NC	MI	Modem Interconnect
51	MCLK_P	MI	Modem Interconnect
52	CTRLSIN_P	MI	Modem Interconnect
53	RESERVED	MI	Modem Interconnect
54	SOUT_P	MI	Modem Interconnect
55	SIN_P	MI	Modem Interconnect
56	FSYNC_P	MI	Modem Interconnect
57	IARESET_P#	MI	Modem Interconnect
58	AGND3	GND	IA Analog Ground
59	NC	—	No Connection
60	LINEIN_P	I	Line Interface
61	MICP_P	I	Microphone Input
62	MICM_P	I	Microphone Input
63	MICBIAS_P	O	Microphone Bias Output
64	NC	—	No Connection
65	NC	NC	No Connection
66	VREF_P	MI	Modem Interconnect
67	VC_P	MI	Modem Interconnect
68	VAA_P	PWR	5V Analog Supply for IA
69	LINEOUT_P	O	Line Interface
70	AGND4	GND	IA Analog Ground
71	SPKRP_P	O	Speaker Interface Output

FM209V (IC5) Hardware Interface Signals

Pin Signals – 128-Pin TQFP

Pin No.	Signal Name	I/O Type	Pin Description
72	SPKRM_P	O	Speaker Interface Output
73	AVDD_P	PWR	5V Digital power for IA
74	NC	—	No Connection
75	ICLK_P	MI	Modem Interconnect
76	MCLK_S/NC	MI	Modem Interconnect
77	VDD2	PWR	3.3V Digital Supply for DSP
78	D7	IB/OC	Host Parallel Interface
79	D6	IB/OC	Host Parallel Interface
80	D5	IB/OC	Host Parallel Interface
81	D4	IB/OC	Host Parallel Interface
82	D3	IB/OC	Host Parallel Interface
83	D2	IB/OC	Host Parallel Interface
84	DGND2	GND	DSP Digital Ground
85	VDD3	PWR	3.3V Digital Supply for DSP
86	D1	IB/OC	Host Parallel Interface
87	DGND3	GND	DSP Digital Ground
88	D0	IB/OC	Host Parallel Interface
89	CSBR#	IB	Host Parallel Interface
90	WRITE#	IB	Host Parallel Interface
91	CS#	IB	Host Parallel Interface
92	READ#	IB	Host Parallel Interface
93	GPI2	IA	General purpose input
94	GPI3	IA	General purpose input
95	GPI4	IA	General purpose input
96	GPI5	IA	General purpose input
97	GPI6	IA	General purpose input
98	GPI7	IA	General purpose input
99	GPO7	OC	General purpose output
100	VDD4	PWR	3.3V DSP Digital Power
101	GPO6	OC	General purpose output
102	GPO5	OC	General purpose output
103	RESERVED	MI	Modem Interconnect
104	GPO4	OC	General purpose output
105	GPO3	OC	General purpose output
106	DGND4	GND	DSP Digital Ground
107	CTS#	OB	DTE Serial Interface
108	IRQ1#	OB	Interrupt request
109	GPO2	OC	General purpose output
110	GPO1	OC	General purpose output
111	GPO0	OC	GPO0 (IA reset)
112	VDD5	PWR	3.3V DSP Digital Power
113	VGG	PWR	5V DSP Digital
114	DGND5	GND	DSP Digital Ground
115	RESET#	IB	External reset
116	XTALI	I	Crystal in
117	XTALO	O	Crystal out
118	RESERVED	MI	Modem Interconnect
119	XCLK	OB	X clock output
120	GPI1	IA	General purpose input
121	IRQ2#	OA	Interrupt request
122	SR3IN	MI	Modem Interconnect
123	RESERVED	MI	Modem Interconnect
124	RESERVED	MI	Modem Interconnect
125	DGND6	GND	DSP Digital Ground
126	DVAA	PWR	3.3V DSP analog power
127	AGND5	GND	DSP Analog Ground
128	RESERVED	MI	Modem Interconnect

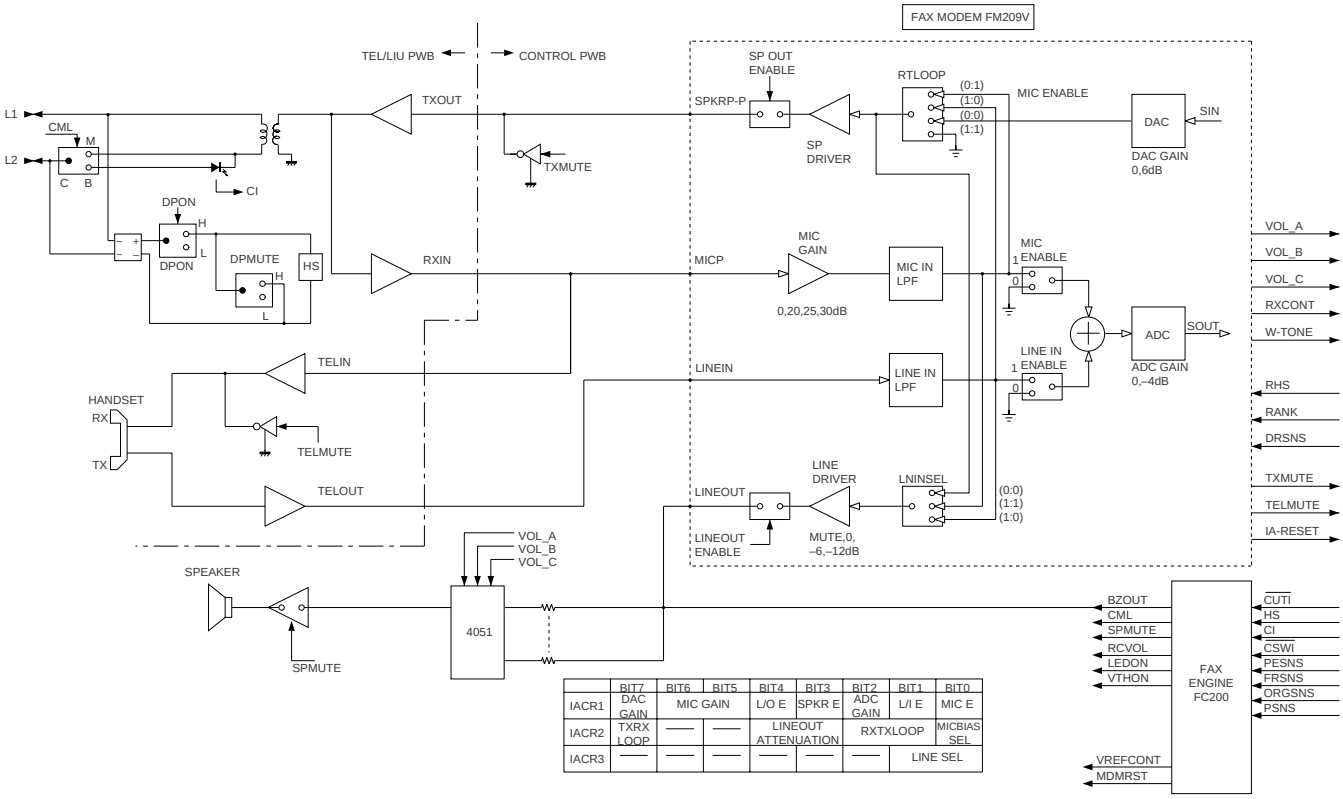
Notes:
I/O types: MI = Modem interconnect.
IA, IB, = digital input
OA, OB, OC = digital output
I = analog input
O = analog output

_P Signals: Primary IA
_S Signals: Secondary IA
Reserved = No external connection allowed.

[3] Circuit description of TEL/LIU PWB

(1) TEL/LIU block operational description

1) Block diagram



	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
IACR1	DAC GAIN	MIC GAIN		L/O E	SPKR E	ADC GAIN	L/I E	MIC E
IACR2	TXRX LOOP	——	——	LINEOUT ATTENUATION		RXTXLOOP		MICBIAS SEL
IACR3	——	——	——	——	——	——	LINE SEL	

Fig. 6

2) Circuit description

The TEL/LIU PWB is composed of the following 6 blocks.

1. Speech circuit section
2. Dial transmission section
3. Speaker amplifier section
4. Ringer circuit section
5. Externally connected TEL OFF HOOK detection circuit
6. CI detection circuit

3) Block description

1. Speech circuit section

- The receiver volume is an electronic volume type, this model is switched in 2 steps.

2. Dial transmission section

- D.P. transmission: The CML relay and PC1 are turned on and off for control in the DP calling system. (Refer to the attached sheet.)
- DTMF transmission: It is formed in the modem, and is output.

3. Speaker amplifier section

- Ringer volume : It is controlled by the combination of the attenuator value of the LINE DRIVER in the modem and the ringer sending level sent from the modem.
- Speaker volume: It is controlled by the attenuator value of the LINE DRIVER in the modem.

4. Ringer circuit section

- The ringer sound is formed in the tone of modem when CI signal is detected. The amplifier circuit drives the speaker of the main body.

5. Externally connected TEL OFF HOOK detection circuit section

- The circuit current detection is turned on together with OFF HOOK of main body or OFF HOOK of externally connected TEL. ON of CML OFF ($\overline{HS}$=L) is judged as OFF HOOK of externally connected TEL.

6. CI detection circuit

- CI is detected by the photocoupler which is integrated in series in the primary side TEL circuit well proven in the existing unit.

4) Signal selection

The following signals are used to control the transmission line of TEL/FAX signal. For details, refer to the signal selector matrix table.

[Control signals from output port]

Signal Name	Description
CML (The circuit is located in the TEL/LIU PWB.)	Line connecting relay H: Line make L: Line break
SP MUTE (The circuit is located in the TEL/LIU PWB.)	Speaker tone mute control signal H: Muting (Power down mode) L: Muting cancel (Normal operation)
TEL MUTE	Handset reception mute control signal H: Muting L: Muting cancel
DPON (The circuit is located in the TEL/LIU PWB.)	Connecting DC circuit and DP generating H: Line connect / Make L: Line disconnect / Break
DPMUTE (The circuit is located in the TEL/LIU PWB.)	Adjust the resistance during make ratio H: Muting L: Muting cancel
TXMUTE (The circuit is located in the control PWB.)	Tx route mute circuit H: Muting L: Muting cancel

VOLUME SETTING

OUTPUT	VALUE	VOL A (GP02)	VOL B (GP03)	VOL C (GP04)	ON-HOOK Receiving	ICM/OGM MONITOR	ICM/OGM PLAY	RINGER	BUZZER	DTMF/DP
X 0	1K	0	0	0	—	—	HIGH	HIGH	—	—
X 1	10K	1	0	0	HIGH	HIGH	MIDDLE1	—	—	—
X 2	39K	0	1	0	MID 1	MID 1	MIDDLE2	—	—	—
X 3	100K	1	1	0	MID 2	MID 2	MIDDLE3	—	—	—
X 4	200K	0	0	1	MID 3	MID 3	LOW	MIDDLE	—	—
X 5	300K	1	0	1	—	—	—	—	—	FIXED
X 6	470K	0	1	1	LOW	LOW	—	—	FIXED	—
X 7	750K	1	1	1	—	—	—	LOW	—	—

[Signals for status recognition according to input signals]

Signal Name	Function
$\overline{\text{RHS}}$	H: The handset is in the on-hook state. L: The handset is in the off-hook state.
CI	Incoming call (CI) detection signal

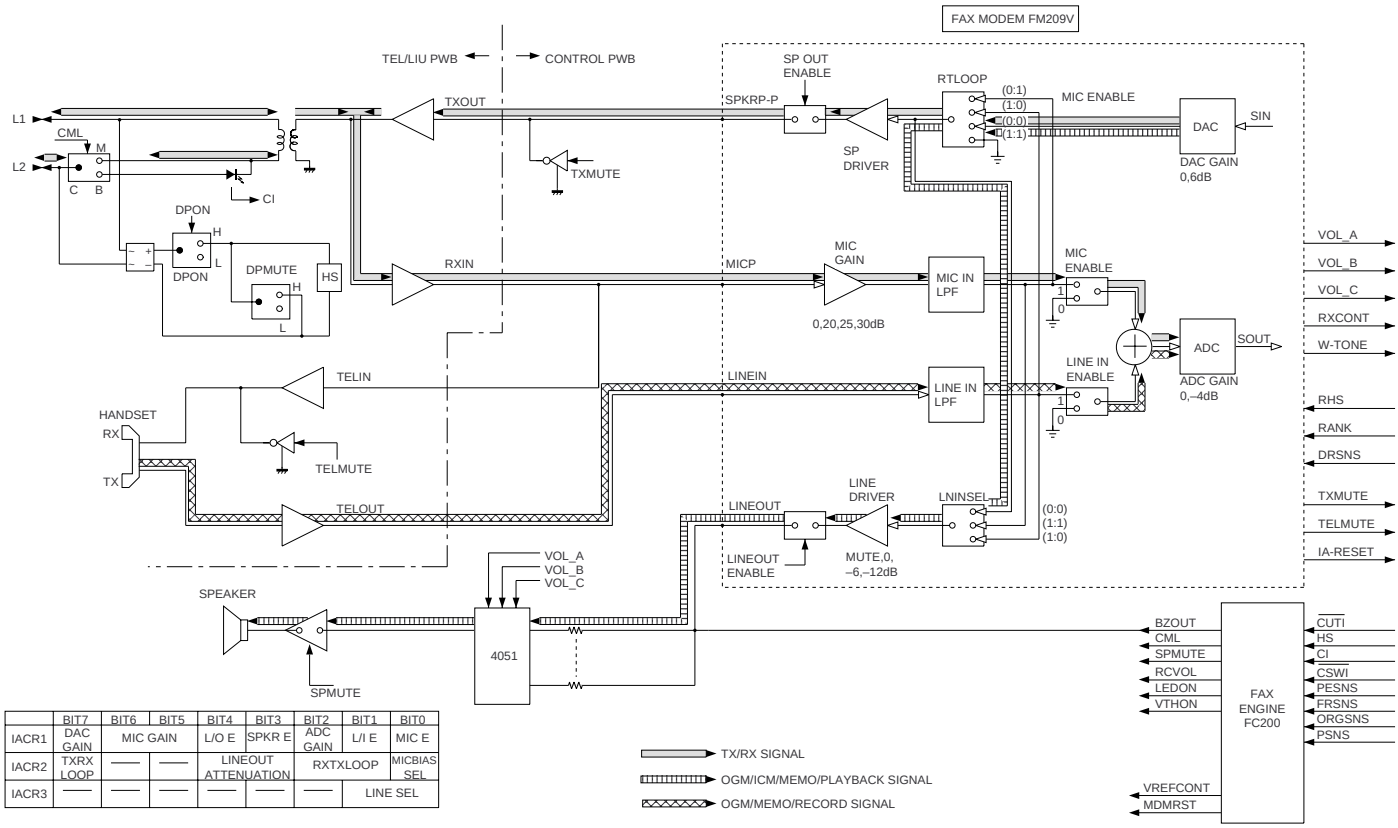
[Other signals]

Signal Name	Function
TEL IN	Receiving signal from line or modem
TEL OUT	Transfer signal to line
SPOUT	Speaker output signal
TXOUT	Transmission (DTMF) analog signal output from modem
RXIN	Reception (DTMF, others) analog signal input into modem

NO	Signal Name (CNLIUA)	NO	Signal Name (CNLIUA)
1	TELOUT	7	RXIN
2	TELIN	8	TXOUT
3	TELMUTE	9	CML
4	CI	10	+5V
5	HS	11	DG
6	$\overline{\text{RHS}}$	12	+24V

NO	Signal Name (CNLIUB)	NO	Signal Name (CNLIUB)
1	RLYCNT	3	DPON
2	N. C.	4	DPMUTE
		5	E-RLY

(Example: TEL speaking)



	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
IACR1	DAC GAIN	MIC GAIN		L/O E	SPKR E	ADC GAIN	L/I E	MIC E
IACR2	TXRX LOOP	——	——	LINEOUT ATTENUATION		RXTXLOOP		MICBIAS SEL
IACR3	——	——	——	——	——	——	LINE SEL	

Fig. 7

[4] Circuit description of power supply PWB

1. Block diagram

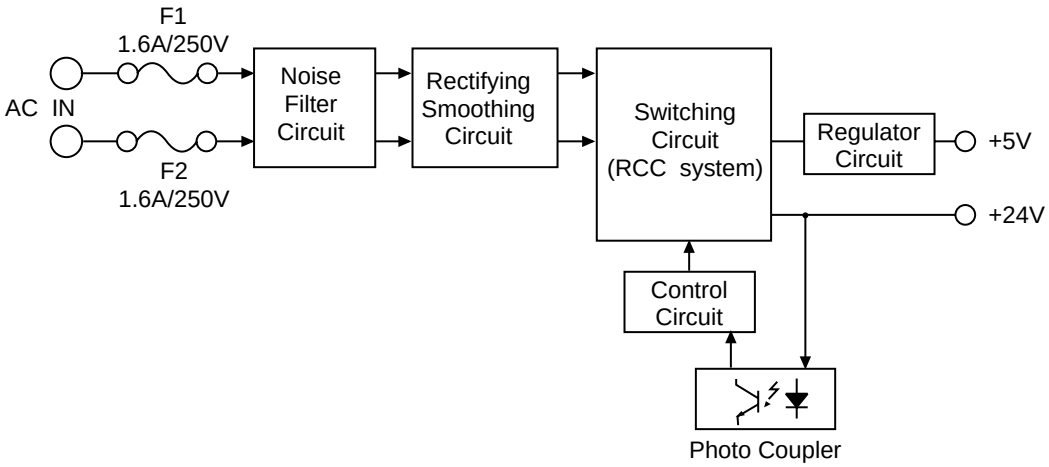


Fig. 8

2-1. Noise filter circuit

The input noise filter section is composed of L1, C1, C15 and C21 which reduces normal mode noise from the AC line and common mode noise to the AC line.

2-2. Rectifying/smoothing circuit

The AC input voltage is rectified by diode D1, 2, 3, 4 and smoothed by capacitor C2 to supply DC voltage to the switching circuit section.

Power thermistor TH1 suppresses inrush current at power switch-on.

2-3. Switching circuit

This circuit includes MOS FET Q1 and the gate drive circuit, and components around Q1.

In this circuit, the DC voltage supplied from the rectifying/smoothing section is converted into high frequency pulses by ON/OFF repetition of Q1.

2-4. Control circuit

This circuit controls output voltage of 24V by adjusting ON period of Q1, looking at signal from photo-coupler PC1.
In this operation IC1 takes charge of important part.
The over current protection is performed by bringing Q1 to OFF state through detection of voltage of T1 subwiding.
The over voltage protection is performed by operating the over current protection circuit through detection of zener diode ZD4 and short-circuiting of load.

2-5. +5V circuit

DC voltage supplied by rectifying the output of transformer T1 with diode D8 is stabilized by 3-terminal regulator IC1.

[5] Circuit description of CIS unit

1. CIS (Contact Image Sensor)

Cis is an image sensor which puts the original paper in close contact with the full-size sensor for scanning, being a monochromatic type with the pixel number of 1,728 dots and the main scanning density of 8 dots/mm.

It is composed of sensor, rod lens, LED light source, light-conductive plate, control circuit and so on, and the reading line and focus are previously adjusted as the unit.
Due to the full-size sensor, the focus distance is so short that the set is changed from the light weight type to the compact type.

2. Waveforms

The following clock is supplied from FC200 of the control board, and VO is output.

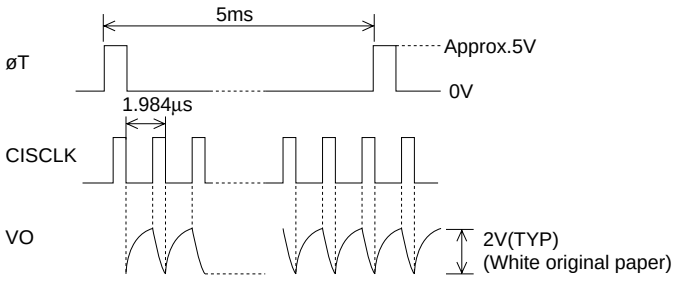
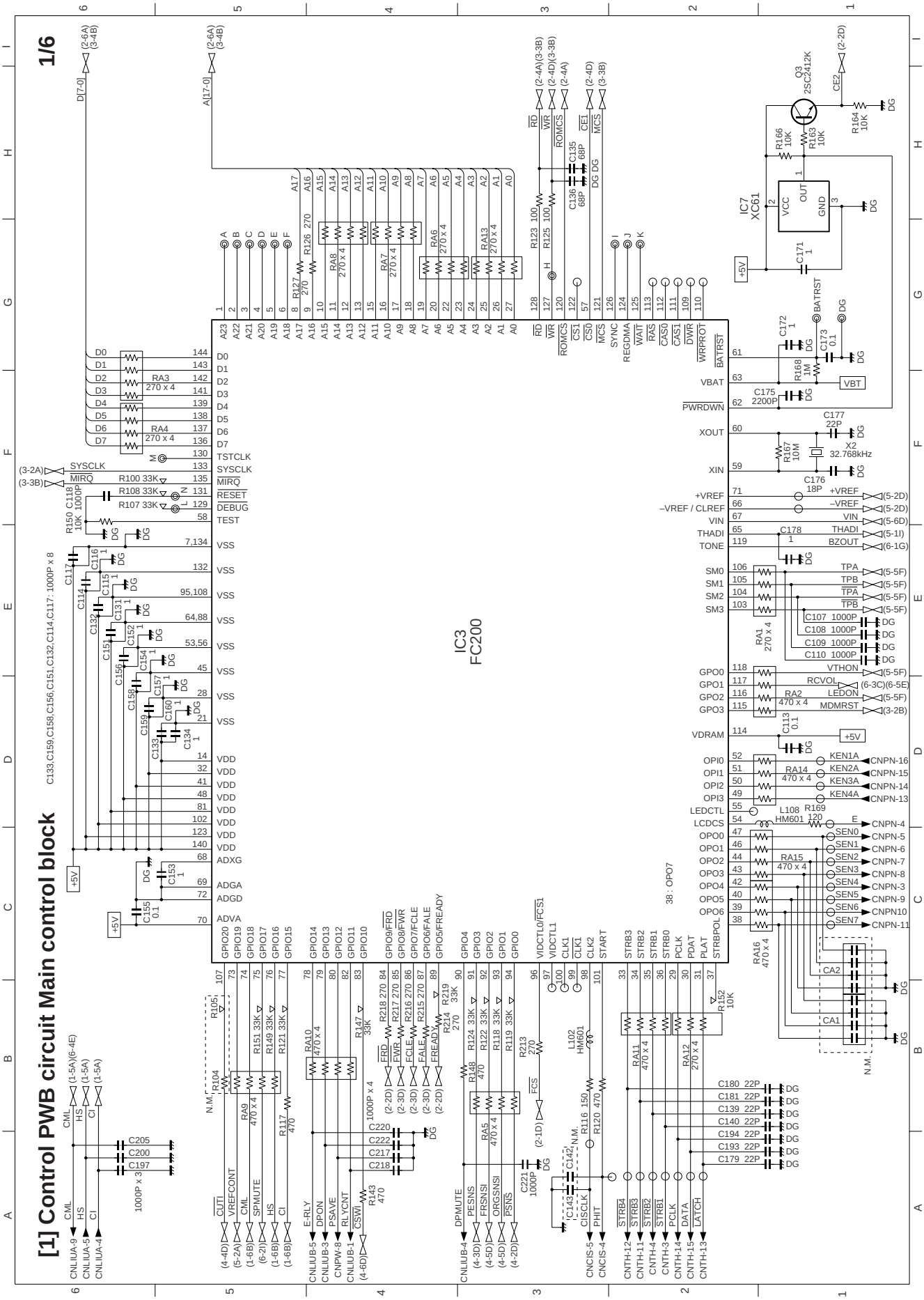


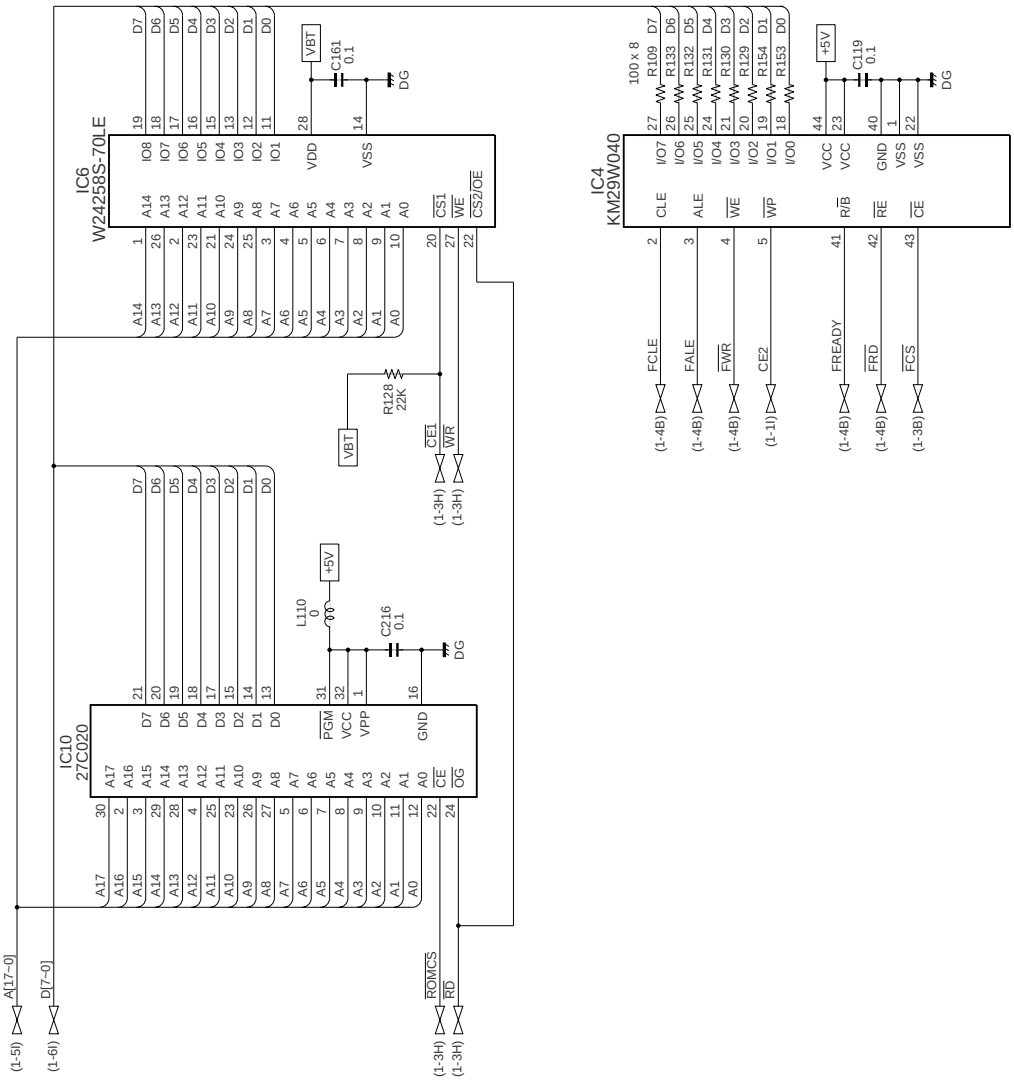
Fig. 9

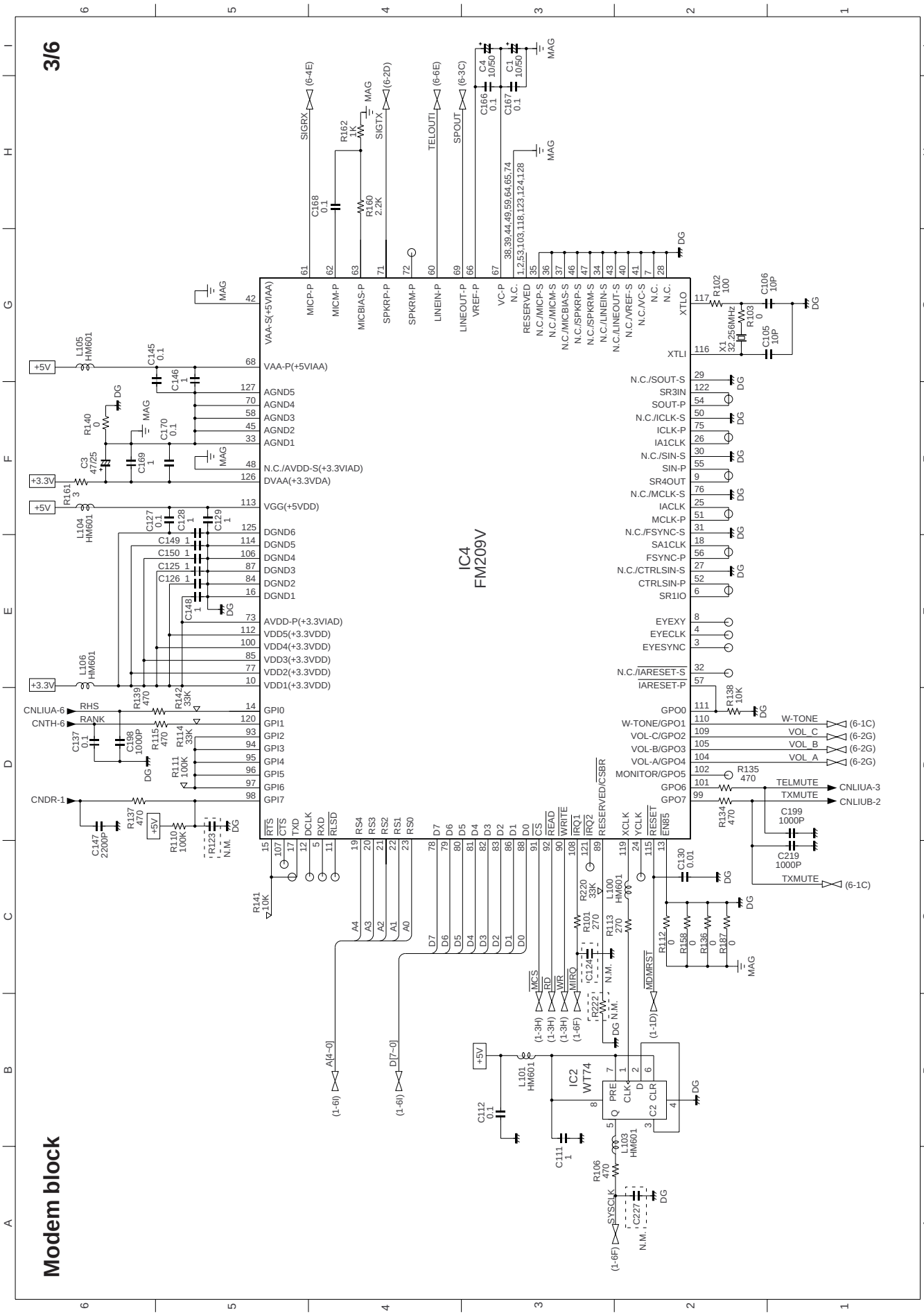
CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT

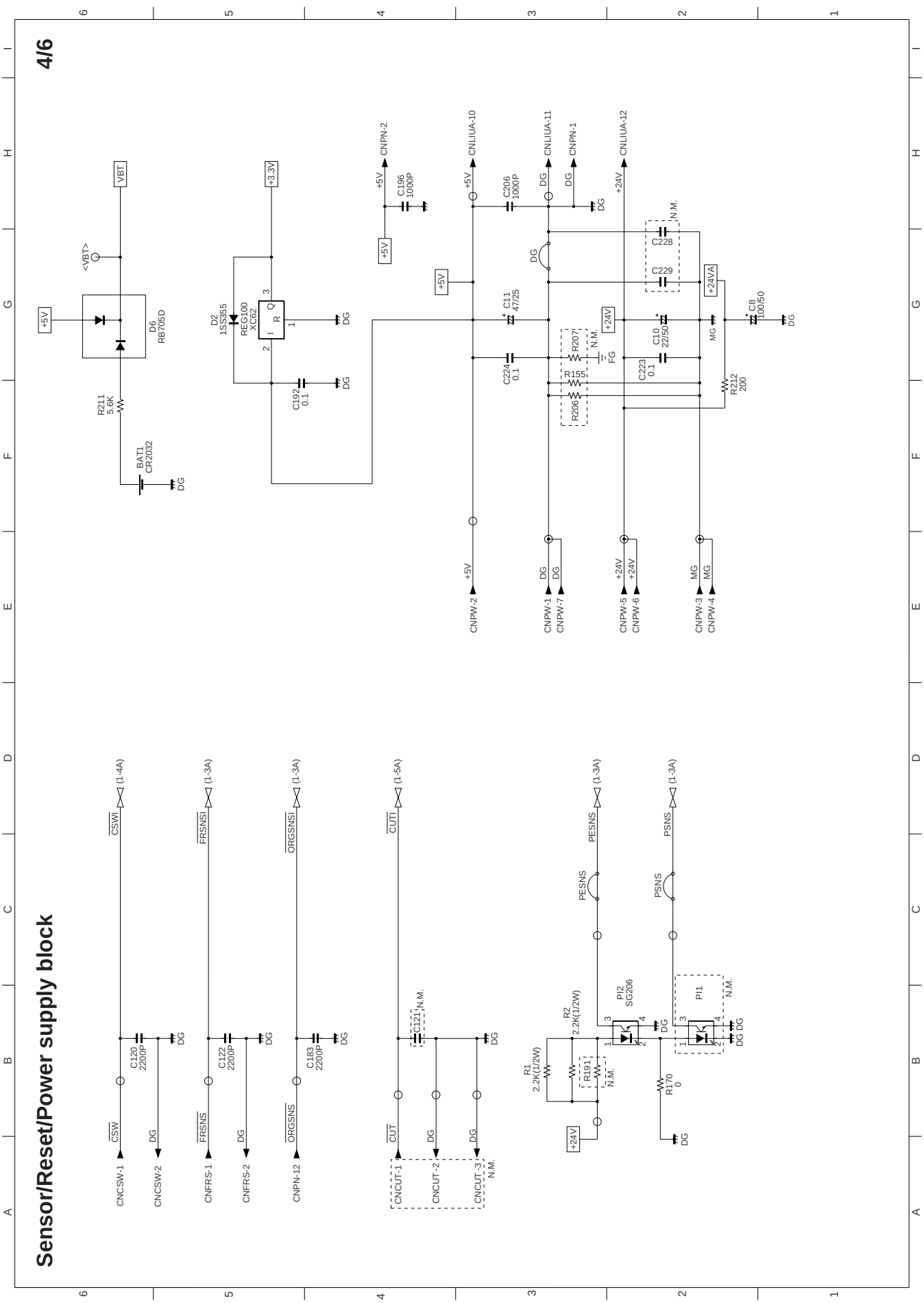


2/6

Memory block

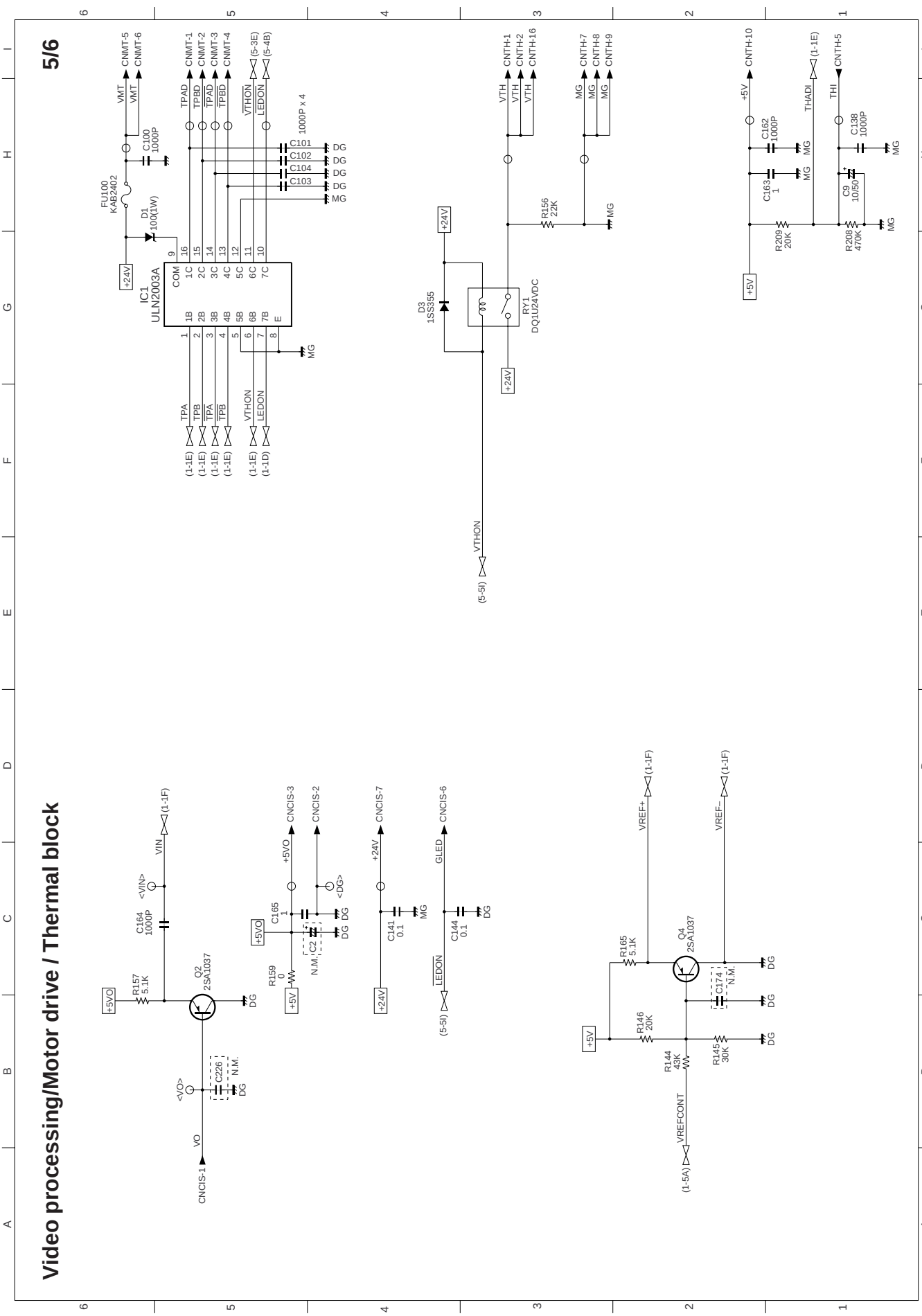


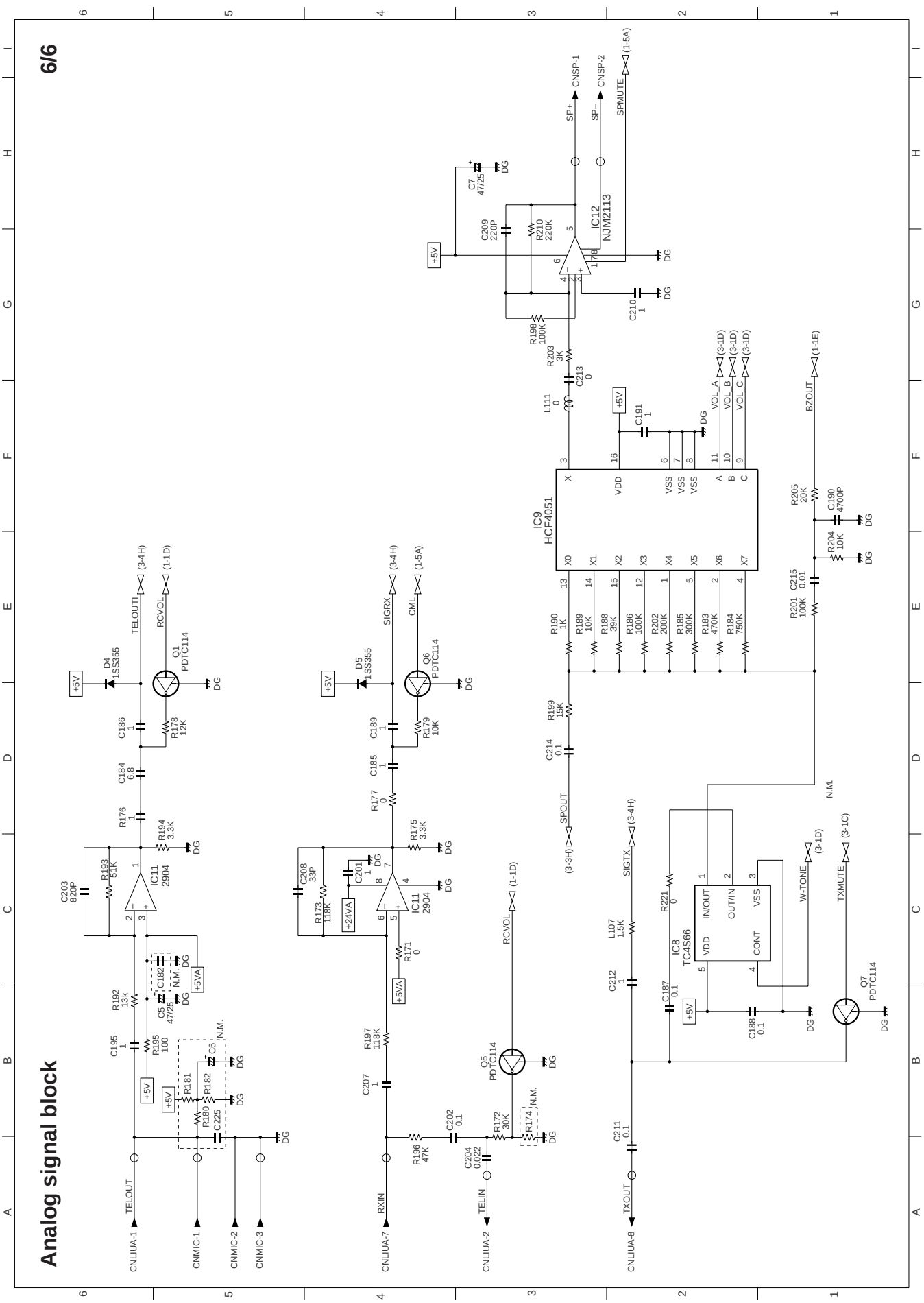

3/6
Modem block
IC4
FM209V
IC2
WT74


4/6
Sensor/Reset/Power supply block
+5V
VBT
<VBT>
D6
RB705D
R211
5.6K
BAT1
CR2032
DG
+3.3V
D2
1SS355
REG100
XC62
C192
0.1
C196
1000P
CNPN-2
C206
1000P
CNLIUA-10
CNLIUA-11
CNPN-1
CNLIUA-12
C11
47/25
C224
0.1
R207
N.M.
R155
R206
C228
C229
+24VA
C10
22/50
C223
0.1
R212
200
C8
100/50
MG
CNPW-2
CNPW-1
CNPW-7
CNPW-5
CNPW-6
CNPW-3
CNPW-4
CSW
CSWI
(1-4A)
C120
2200P
CNCSW-1
CNCSW-2
FRSNS
FRSNSI
(1-3A)
C122
2200P
CNFRS-1
CNFRS-2
ORGSNS
ORGSNSI
(1-3A)
C183
2200P
CNPN-12
CUT
CUTI
(1-5A)
C121
N.M.
CNCUT-1
CNCUT-2
CNCUT-3
N.M.
PESNS
PSNS
(1-3A)
R2
2.2K(1/2W)
PI2
SG206
R1
2.2K(1/2W)
R191
N.M.
+24V
R170
0
PI1

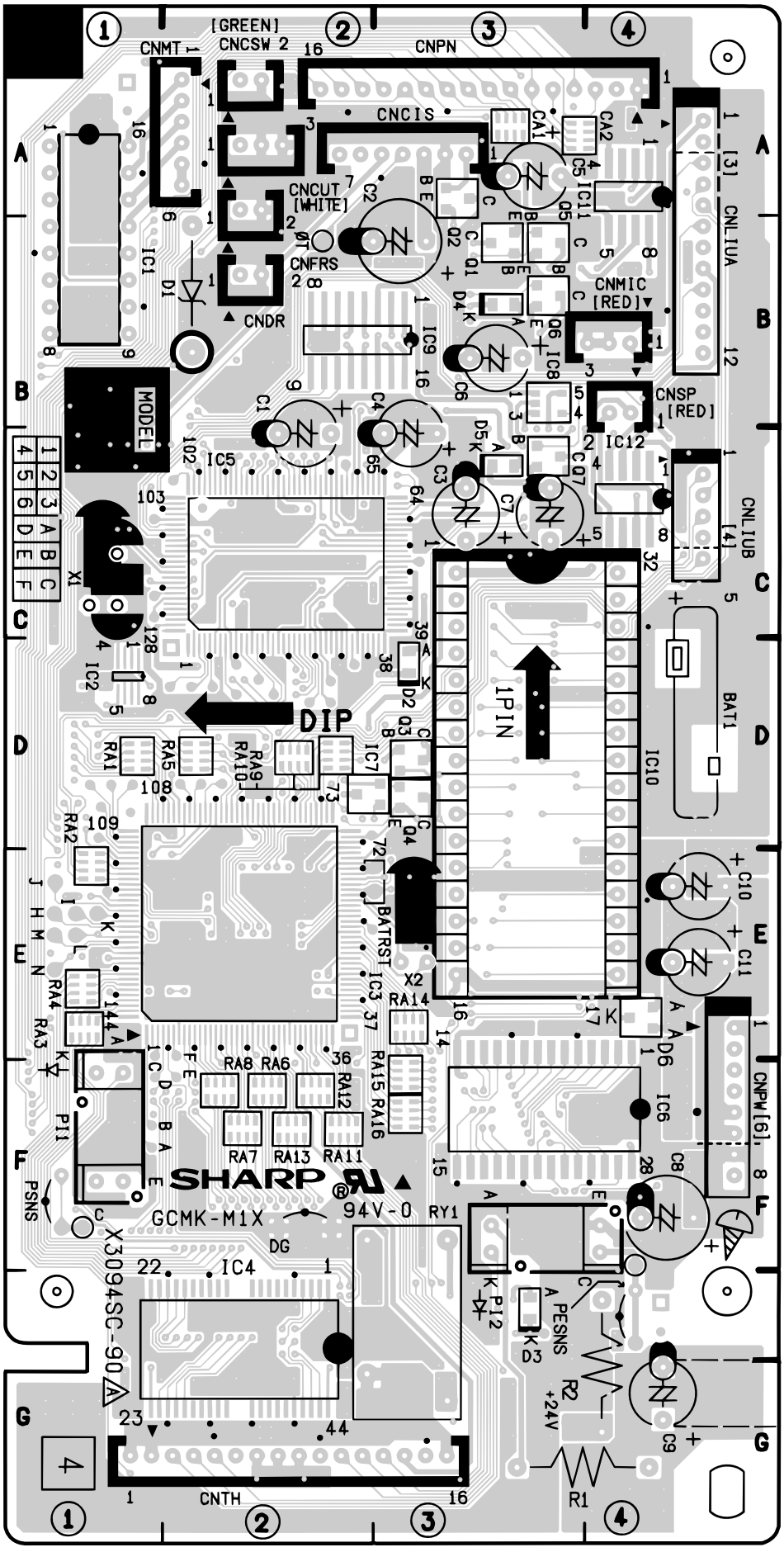
Video processing/Motor drive / Thermal block

5/6

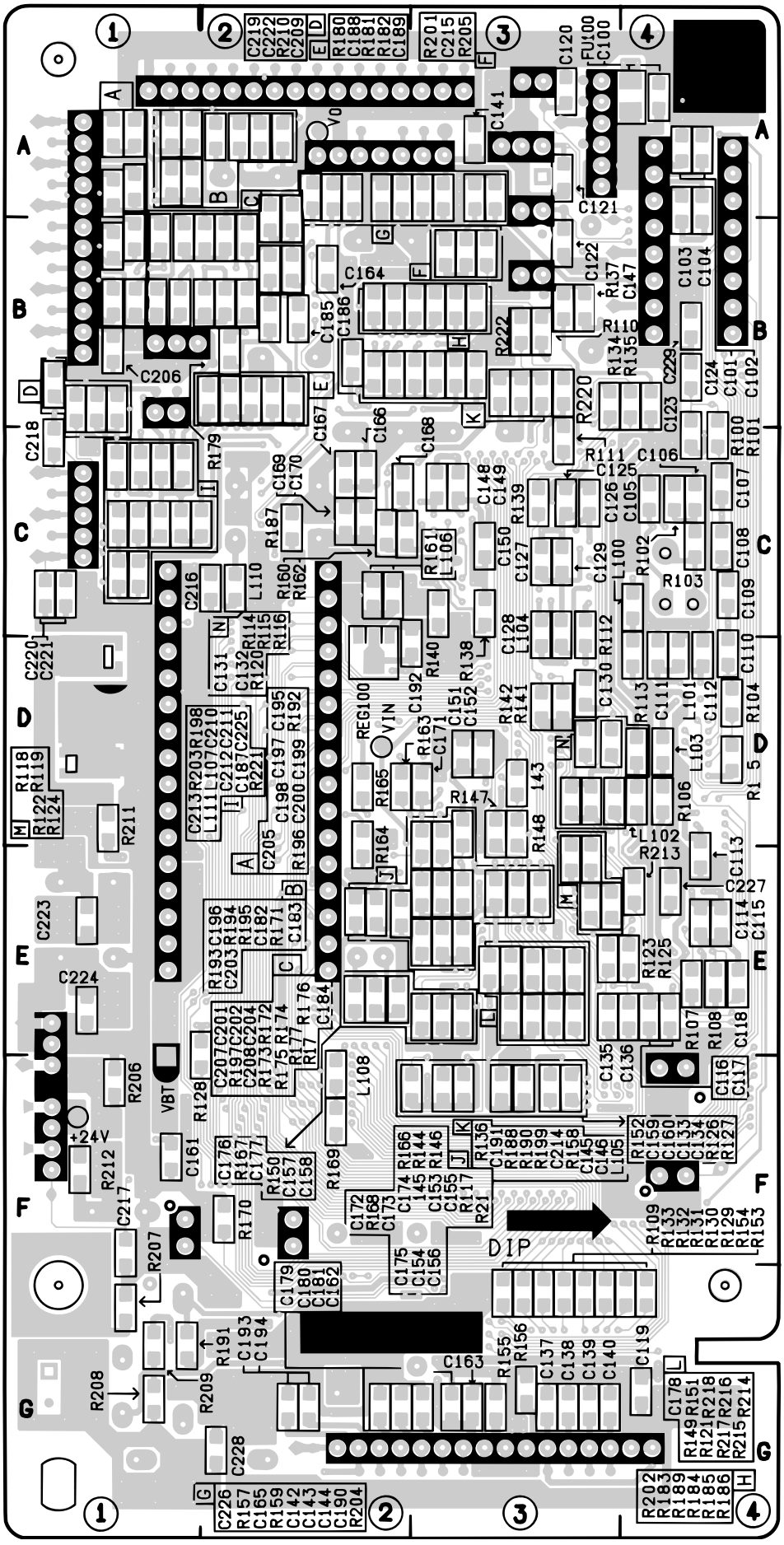


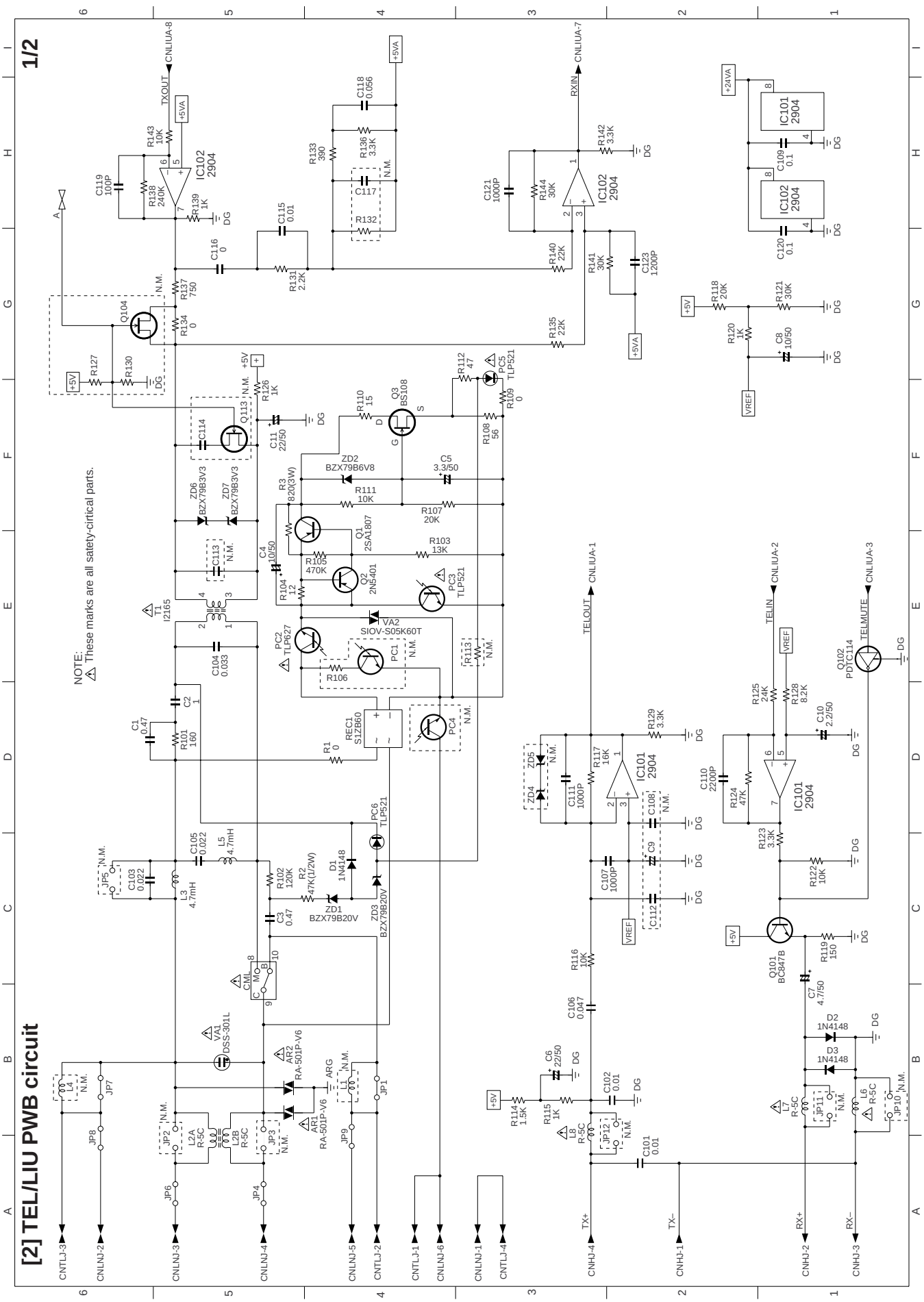

6/6
Analog signal block
IC9
HCF4051
IC11
2904
IC12
NJM2113
IC8
TC4S66
Q1
PDTC114
Q5
PDTC114
Q6
PDTC114
Q7
PDTC114
D4
1SS355
D5
1SS355
+5V
DG
+5VA
+24VA
N.M.
TELOUT
RXIN
TELIN
TXOUT
SPOUT
SIGRX
SIGTX
CML
RCVOL
SP+
SP–
SPMUTE
BZOUT
W-TONE
TXMUTE
VOL_A
VOL_B
VOL_C
CNLIUA-1
CNLIUA-2
CNLIUA-7
CNLIUA-8
CNMIC-1
CNMIC-2
CNMIC-3
CNSP-1
CNSP-2

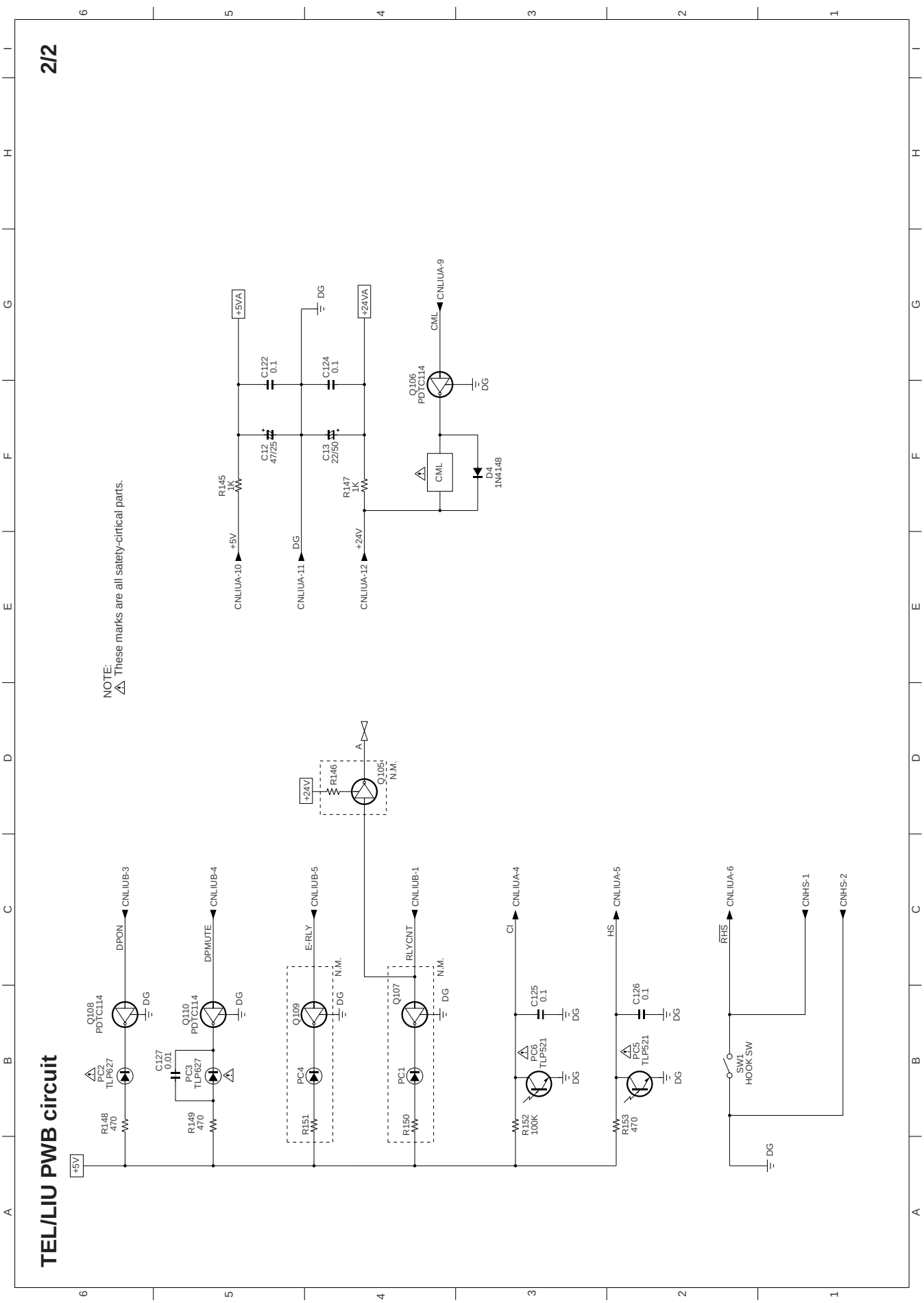
Control PWB parts layout (Top side)



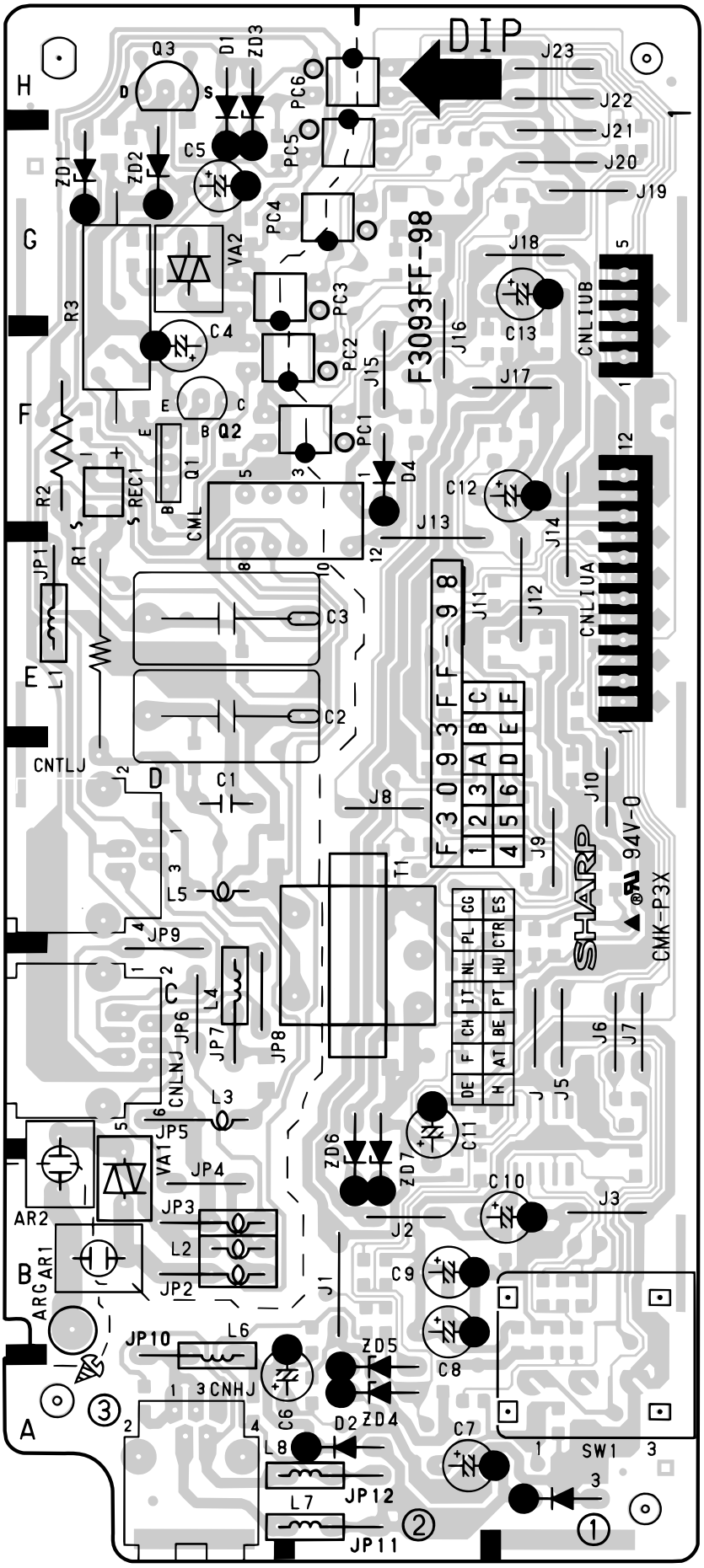
Control PWB parts layout (Bottom side)



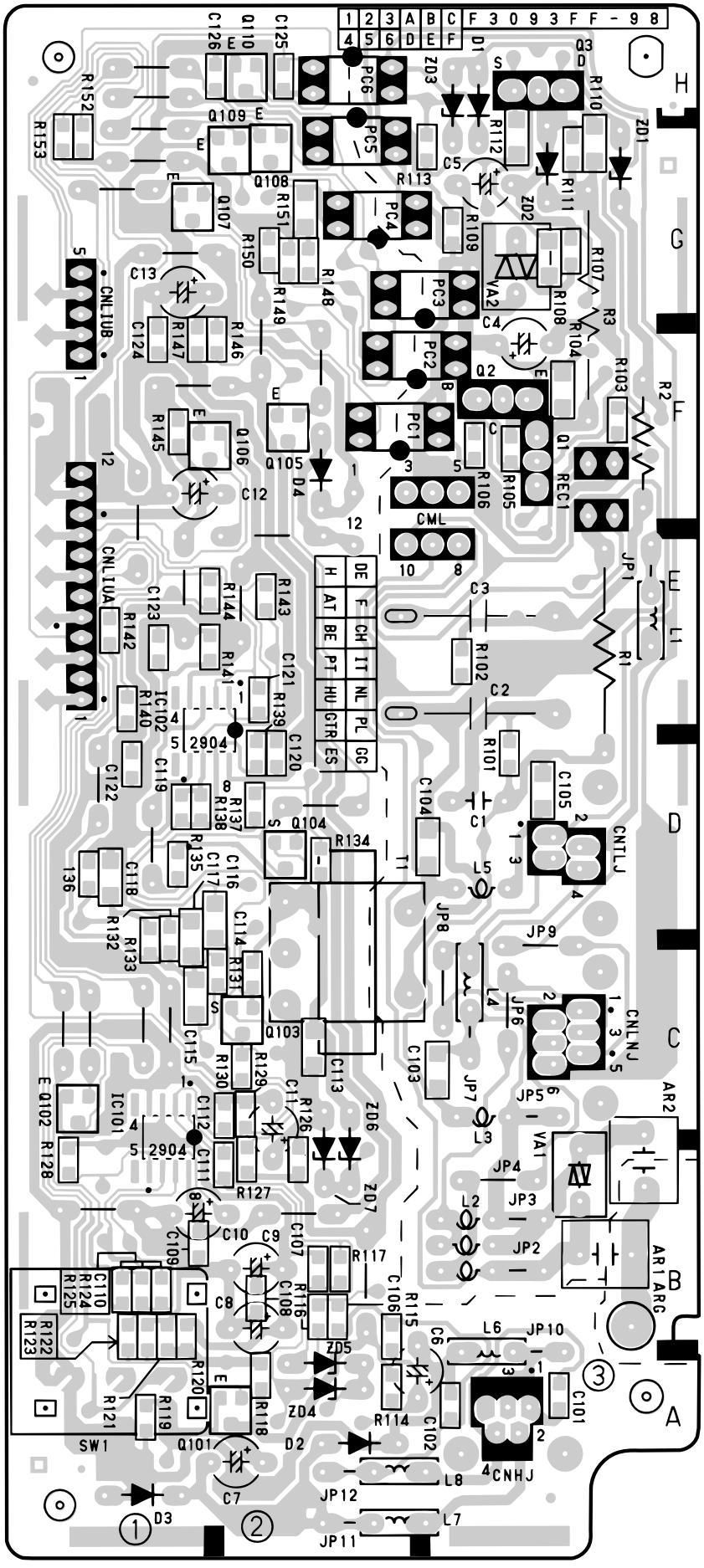

[2] TEL/LIU PWB circuit
1/2
NOTE:
⚠ These marks are all satety-ciritical parts.
CNTLJ-3
CNLNJ-2
CNLNJ-3
CNLNJ-4
CNLNJ-5
CNTLJ-2
CNTLJ-1
CNLNJ-6
CNLNJ-1
CNTLJ-4
CNHJ-4
CNHJ-1
CNHJ-2
CNHJ-3
TX+
TX–
RX+
RX–
CNLIUA-8
CNLIUA-7
CNLIUA-1
CNLIUA-2
CNLIUA-3
TXOUT
RXIN
TELOUT
TELIN
TELMUTE
IC102 2904
IC101 2904
Q104
Q113
Q3 BS108
Q1 2SA1807
Q2 2N5401
Q101 BC847B
Q102 PDTC114
PC1 N.M.
PC2 TLP627
PC3 TLP521
PC4 N.M.
PC5 TLP521
PC6 TLP521
T1 I2165
REC1 S1ZB60
VA1 DSS-301L
VA2 SIOV-S05K60T
AR1 RA-501P-V6
AR2 RA-501P-V6
ARG
D1 1N4148
D2 1N4148
D3 1N4148
ZD1 BZX79B20V
ZD2 BZX79B6V8
ZD3 BZX79B20V
ZD4
ZD5 N.M.
ZD6 BZX79B3V3
ZD7 BZX79B3V3
L2A R-5C
L2B R-5C
L3 4.7mH
L4 N.M.
L5 4.7mH
L6 R-5C
L7 R-5C
L8 R-5C
JP1
JP2 N.M.
JP3 N.M.
JP4
JP5 N.M.
JP6
JP7
JP8
JP9
JP10 N.M.
JP11 N.M.
JP12 N.M.
+5V
+5VA
+24VA
VREF
DG
CML
R1 0
R2 47K(1/2W)
R3 820(3W)
R101 160
R102 120K
R103 13K
R104 12
R105 470K
R106
R107 20K
R108 56
R109 0
R110 15
R111 10K
R112 47
R113 N.M.
R114 1.5K
R115 1K
R116 10K
R117 16K
R118 20K
R119 150
R120 1K
R121 30K
R122 10K
R123 3.3K
R124 47K
R125 2.4K
R126 1K
R127
R128 8.2K
R129 3.3K
R130
R131 2.2K
R132
R133 390
R134 0
R135 22K
R136 3.3K
R137 750
R138 240K
R139 1K
R140 22K
R141 30K
R142 3.3K
R143 10K
R144 30K
C1 0.47
C2 1
C3 0.47
C4 10/50
C5 3.3/50
C6 22/50
C7 4.7/50
C8 10/50
C9
C10 2.2/50
C11 22/50
C101 0.01
C102 0.01
C103 0.022
C104 0.033
C105 0.022
C106 0.047
C107 1000P
C108 N.M.
C109 0.1
C110 220P
C111 1000P
C112
C113 N.M.
C114
C115 0.01
C116 0
C117
C118 0.056
C119 100P
C120 0.1
C121 1000P
C123 1200P


2/2
TEL/LIU PWB circuit
NOTE:
⚠ These marks are all satety-cirtical parts.
+5V
+5VA
+24V
+24VA
DG
CNLIUA-10
CNLIUA-11
CNLIUA-12
CNLIUA-9
CML
Q106
PDTC114
D4
1N4148
C12
47/25
C13
22/50
C122
0.1
C124
0.1
R145
1K
R147
1K
Q105
N.M.
R146
A
CNLIUB-3
DPON
Q108
PDTC114
PC2
TLP627
R148
470
CNLIUB-4
DPMUTE
Q110
PDTC114
C127
0.01
PC3
TLP627
R149
470
CNLIUB-5
E-RLY
Q109
N.M.
PC4
R151
CNLIUB-1
RLYCNT
Q107
N.M.
PC1
R150
CNLIUA-4
CI
C125
0.1
PC6
TLP521
R152
100K
CNLIUA-5
HS
C126
0.1
PC5
TLP521
R153
470
CNLIUA-6
RHS
SW1
HOOK SW
CNHS-1
CNHS-2

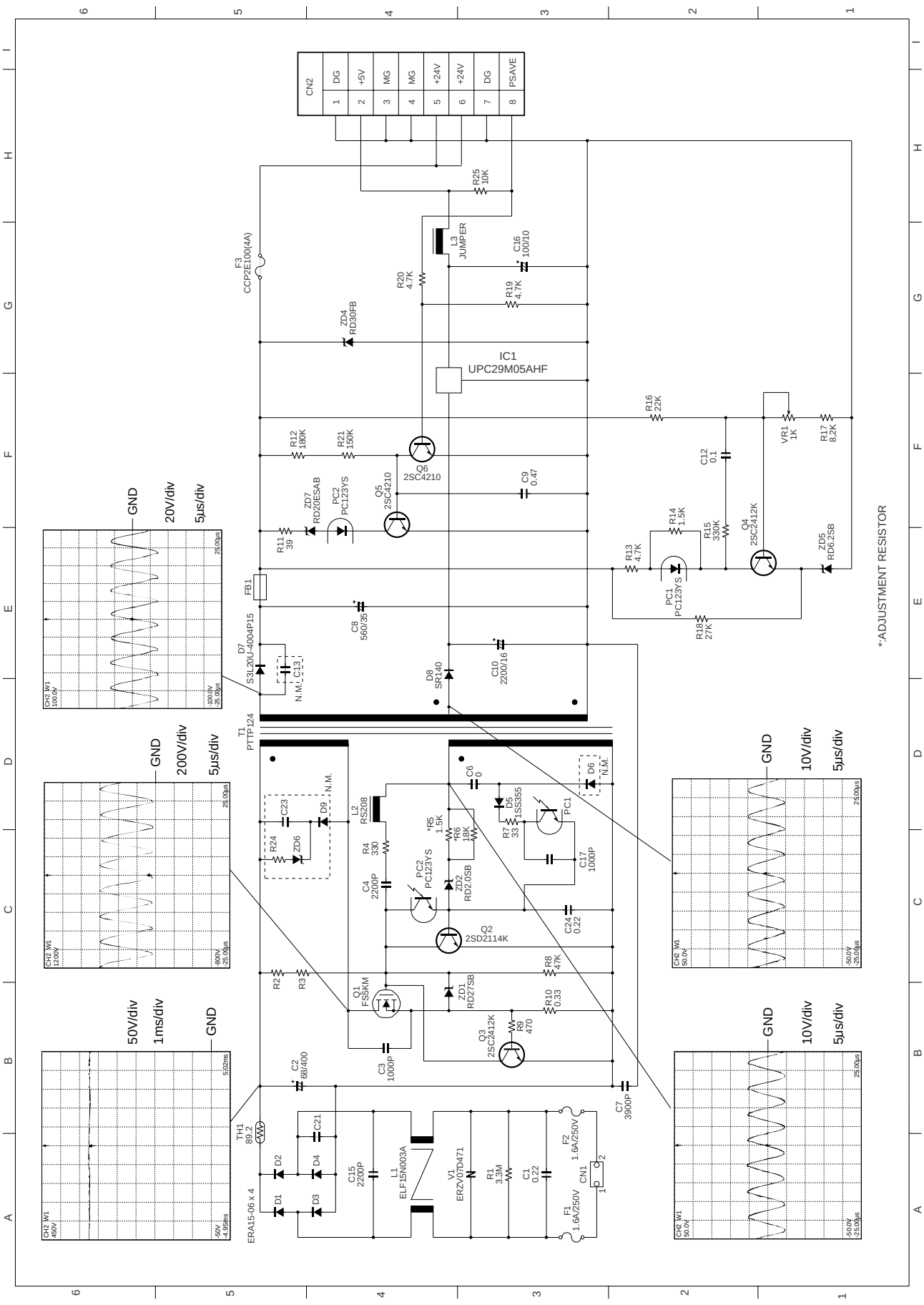
TEL/LIU PWB parts layout (Top side)



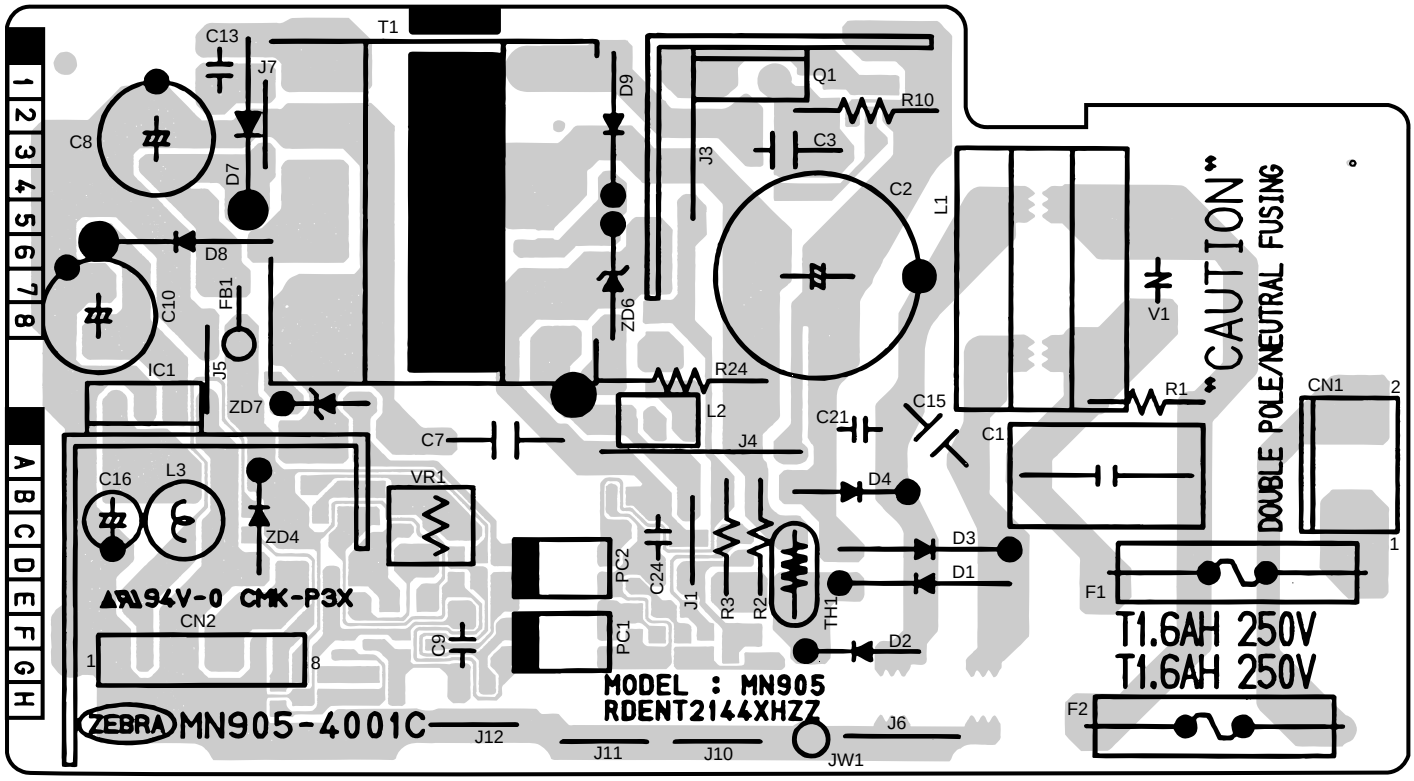
TEL/LIU PWB parts layout (Bottom side)



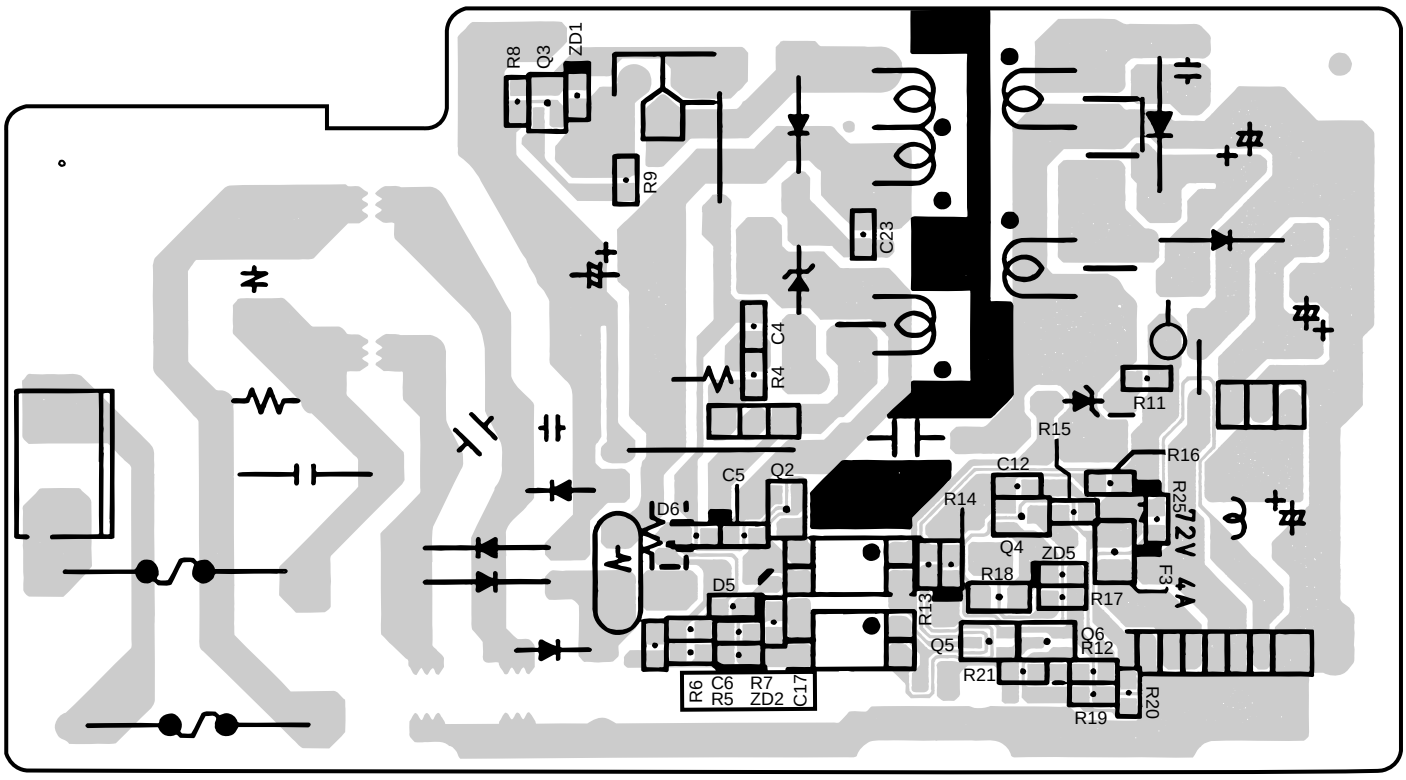
[3] Power supply PWB circuit



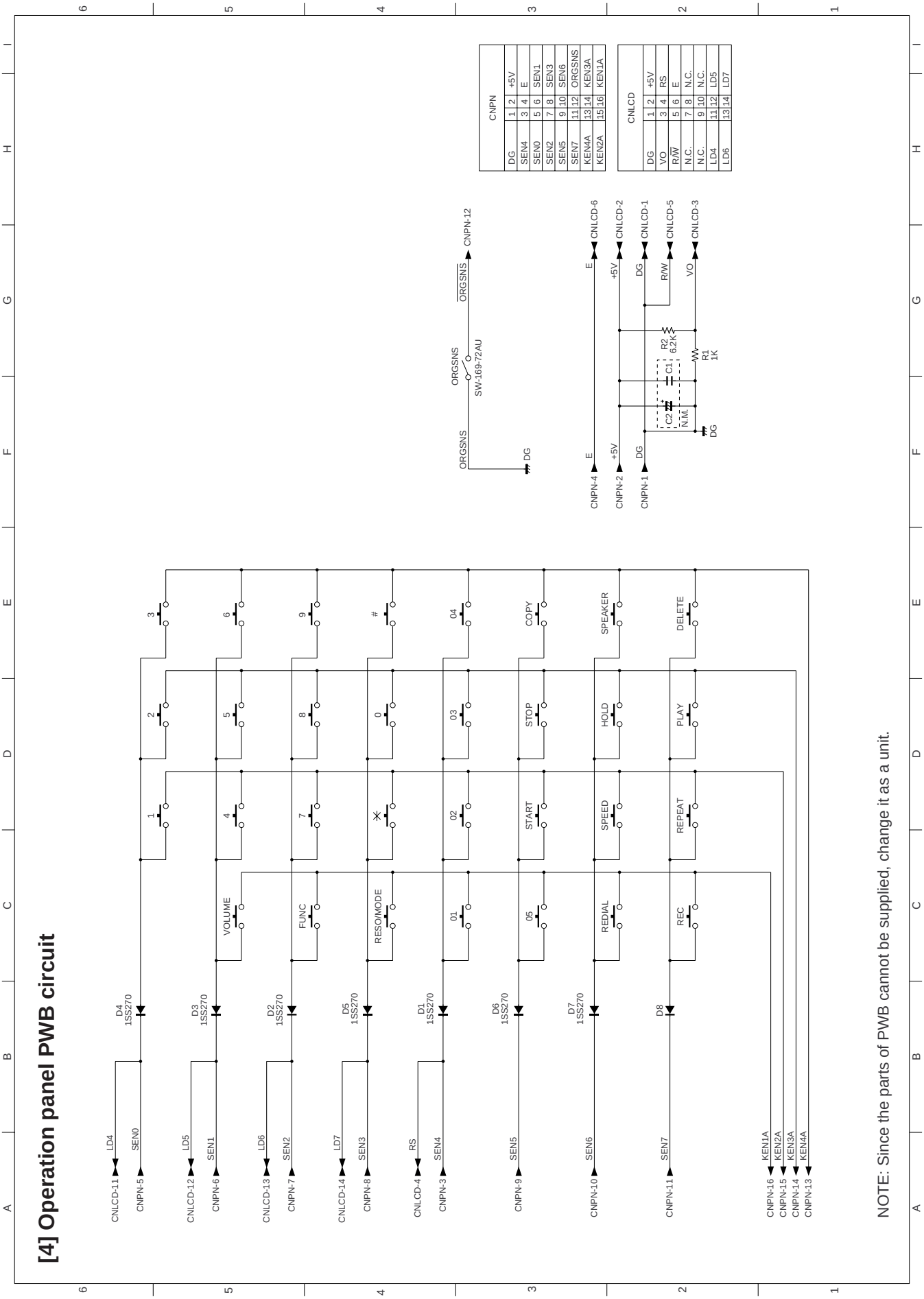
Power supply PWB parts layout (Top side)



Power supply PWB parts layout (Bottom side)



[4] Operation panel PWB circuit



NOTE: Since the parts of PWB cannot be supplied, change it as a unit.

M E M O

UX-68DE
FO-78DE

SHARP **PARTS GUIDE**

MODEL UX-68 FO-78

CONTENTS

1 Cabinet, etc.

2 Scanner unit

3 Upper cabinet

4 Document guide upper

5 Drive unit

6 Packing material & Accessories

7 Control PWB unit

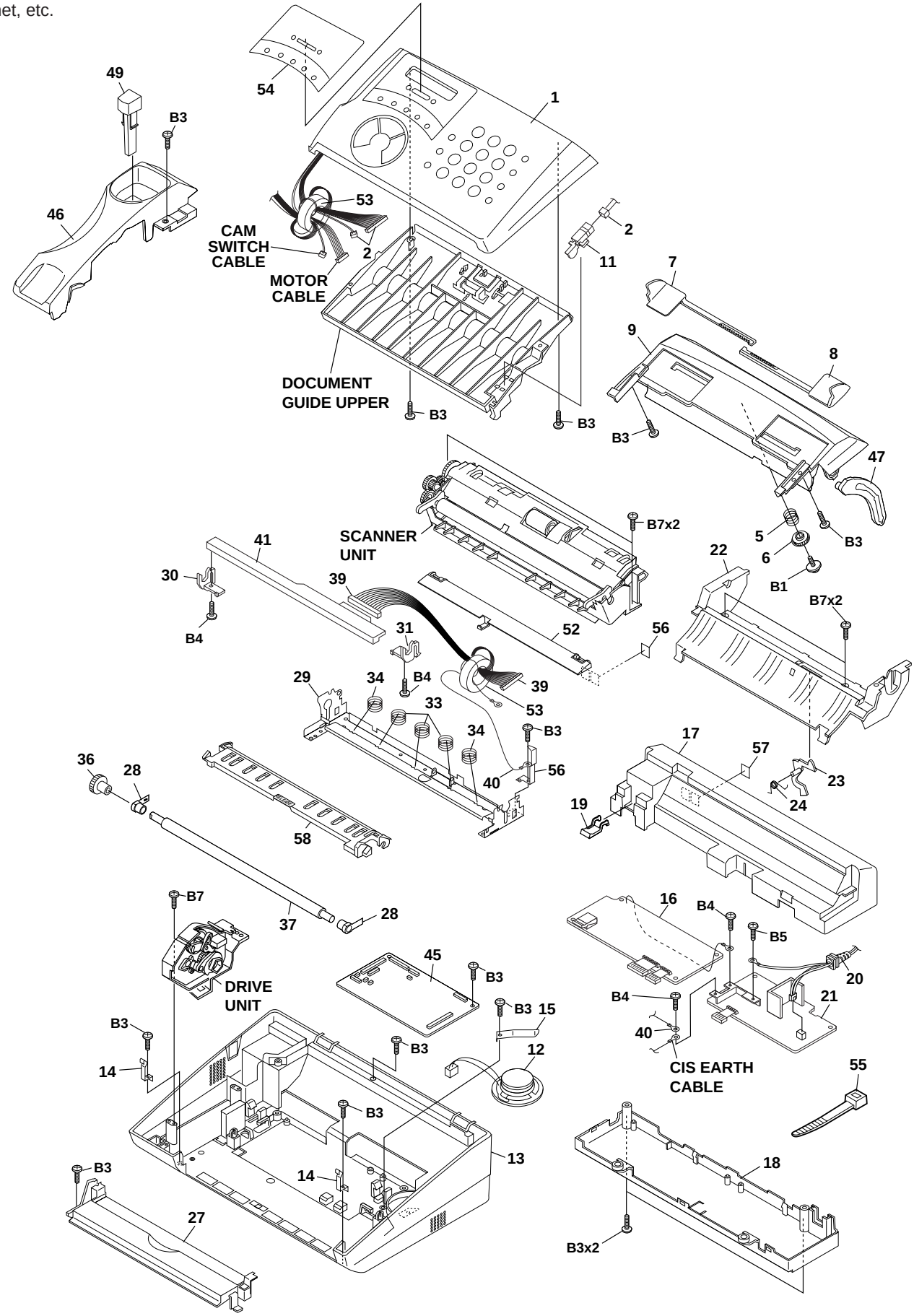
8 TEL-LIU PWB unit

9 Power supply PWB unit

■ Index

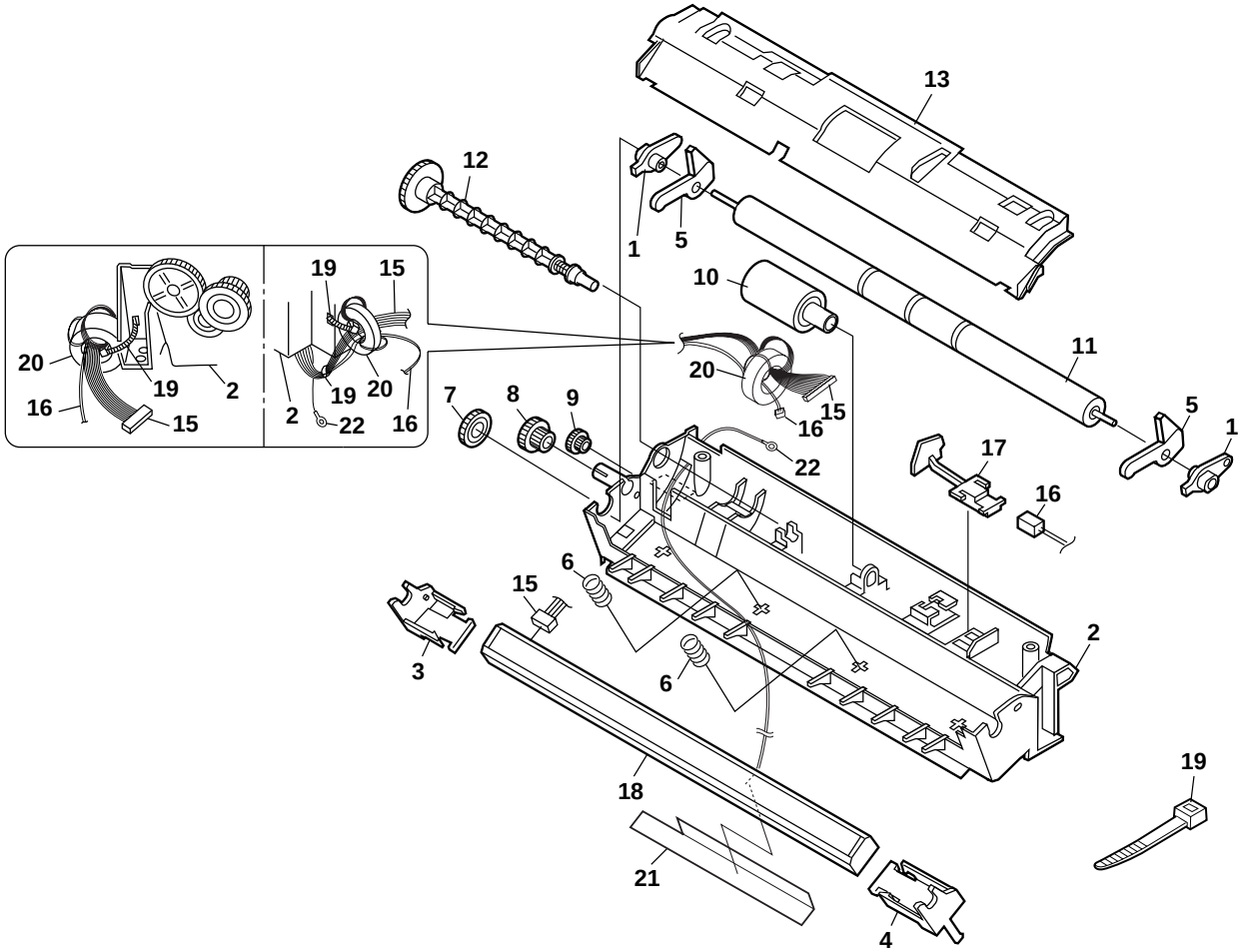
Because parts marked with "⚠" are indispensable for the machine safety maintenance and operation, it must be replaced with the parts specifi to the product specification.

[1] Cabinet, etc.



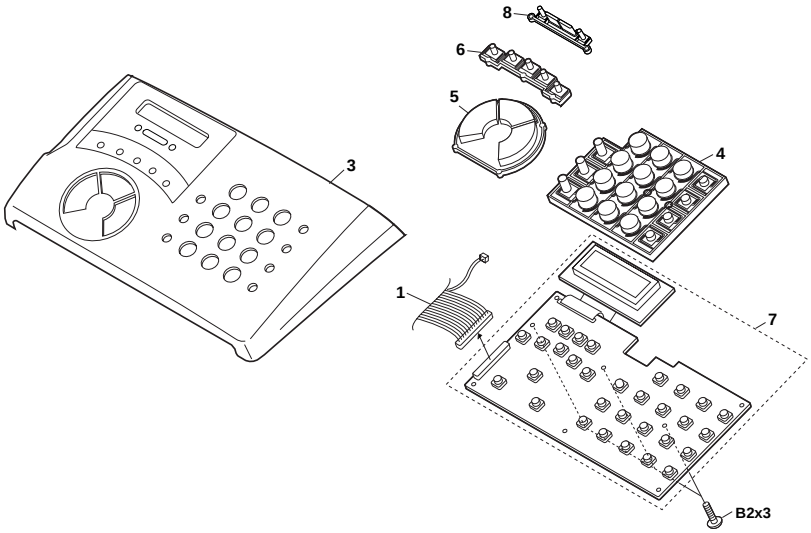
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[1] Cabinet etc.						
1	DCEKK201CFF10		N	E	Operation panel unit	[68]
	DCEKK201CFF11		N	E	Operation panel unit	[78]
2	CCNW-212AXH01	AK		C	Panel cable ass'y	
5	MSPRC2954FFZZ			C	Hopper spring	
6	NGERP2318XHZZ	AD		C	Pinion gear	
7	PGIDM2560XHSA	AC		C	Hopper,guide,left	[68]
	PGIDM2560XHSC			C	Hopper,guide,left	[78]
8	PGIDM2561XHSA	AC		C	Hopper,guide,right	[68]
	PGIDM2561XHSC			C	Hopper,guide,right	[78]
9	PHOP-2104FFSA			C	Hopper cover	[68]
	PHOP-2104FFSC			C	Hopper cover	[78]
11	QSW-M2296XHZZ	AD		B	Door sensor	
12	CCNW-215AFF01			C	Speaker ass'y	
13	GCABB2343FFSA			D	Lower cabinet	[68]
	GCABB2343FFSC			D	Lower cabinet	[78]
14	MSPRP3119XHZZ	AC		C	Panel lock lever spring	
15	MSPRP3123XHZZ	AC		C	Speaker holder lever spring	
16	DCEKL227CFF01			E	TEL/Liu PWB unit	
⚠ 17	GCASP2110FFSD		N	C	PWB case,top	[68]
⚠	GCASP2110FFSE		N	C	PWB case,top	[78]
⚠ 18	GCASP2111FFSA		N	C	PWB case,bottom	[68]
⚠	GCASP2111FFSC		N	C	PWB case,bottom	[78]
19	MLEVP2320XHZZ	AC		C	Hook switch joint lever	
⚠ 20	QACCE2013BMZZ			B	AC cord ass'y	
⚠ 21	RDENT2144XHZZ	BA		E	Power supply PWB unit	
22	GDAI-2083FFZZ			C	Paper support guide	
23	MLEVP2316XHZZ	AC		C	Paper sensor lever	
24	MSPRD3116FFZZ			C	Paper sensor lever spring	
27	PGIDM2563XHSA	AE		C	PO guide	[68]
	PGIDM2563XHSC	AC		C	PO guide	[78]
28	LBSHP2112XHZZ	AB		C	Platen bearing	
29	LFRM-2208XHZZ	AF	N	C	Head frame	
30	LHLDZ2184XHZZ	AC		C	Head holder,left	
31	LHLDZ2185XHZZ	AC		C	Head holder,right	
33	MSPRC3112FFZZ			C	Head spring 1	
34	MSPRC3148FFZZ			C	Head spring 2	
36	NGERH2478XHZZ	AB		C	Platen gear	
37	NROLR2425XHZZ	AP		C	Platen roller	
39	QCNW-209AXHZZ	AH		C	Head cable	
40	QCNW-210AXHZZ	AC		C	Head earth cable	
41	RHEDZ2059XHZZ	BF		B	Thermal head	
45	CPWBX3094FF01		N	E	Control PWB unit(Without ROM)	
46	GDAI-2082XHSA	AD		C	Handset cover	[68]
	GDAI-2082XHSC			C	Handset cover	[78]
47	LSTPP2054XHZZ	AC		C	Panel stopper	
49	MLEVP2319XHZZ	AC		C	Hook switch lever	
52	PGIDM2566XHZZ	AC		C	Head guide	
⚠ 53	RCORF2064XHZZ	AF		B	Core(TRA31)	
54	HPNLH2393XHSJ		N	D	Decoration panel	[68]
	HPNLH2393XHSP		N	D	Decoration panel	[78]
55	LHLDW1033CE00	AA		C	Band	
56	LPLTM3107XHZZ	AD	N	C	Earth plate	
57	PSHEZ3410FFZZ		N	C	Jack sheet	
58	MLEVP2321XHZZ	AN		C	Release lever	
B1	LX-BZ2138FFZZ			C	Screw(2x6)	
B3	XEBSD30P08000	AA		C	Screw(3x8)	
B4	XBBSD30P06000	AA		C	Screw(3x6)	
B5	XBPSN40P06K00	AA		C	Screw(4x6)	
B7	XEBSD30P12000	AA		C	Screw(3x12)	

[2] Scanner unit



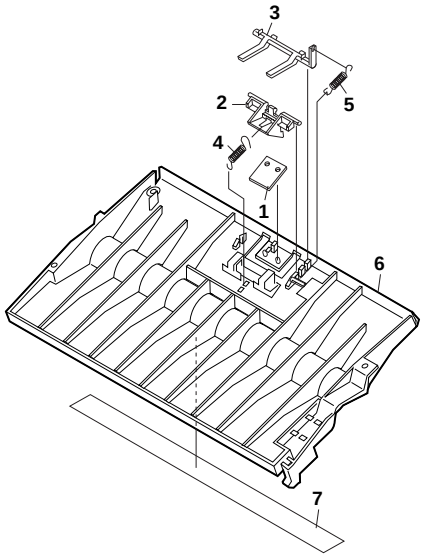
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[2] Scanner unit					
1	LBSHP2110XHZZ	AB		C	Back roller bearing
2	LFRM-2209FFZZ			C	Scanner frame
3	LHLDZ2180XHZZ	AC		C	CIS support,left
4	LHLDZ2181XHZZ	AC		C	CIS support,right
5	MLEVP2317XHZZ	AB		C	CIS release lever
6	MSPRC3117FFZZ			C	CIS spring
7	NGERH2479XHZZ	AB		C	Back roller gear
8	NGERH2480XHZZ	AB		C	Reduction gear,17/28Z
9	NGERH2481XHZZ	AB		C	Reduction gear,17/23Z
10	NROLR2375XHZZ	AL		C	Feed roller
11	NROLR2428XHZZ	AP		C	Back roller
12	NSFTZ2273XHZZ	AF		C	Feed roller shaft
13	PGIDM2562XHZZ	AD		C	Document guide lower
15	QCNW-4814XHZZ	AG		C	CIS cable
16	QCNW-213AXHZZ	AC		C	Front sensor cable
17	QSW-M2293XHZZ	AE		B	Front sensor
18	RUNTZ2054XHZZ	BE		B	CIS unit
19	LHLDW1033CE00	AA		C	Band
⚠ 20	RCORF2063XHZZ	AF		B	Core
21	PSHEZ3543XHZZ	AE	N	C	CIS earth sheet
22	QCNW-352AFFZZ		N	C	CIS earth cable

[3] Upper cabinet



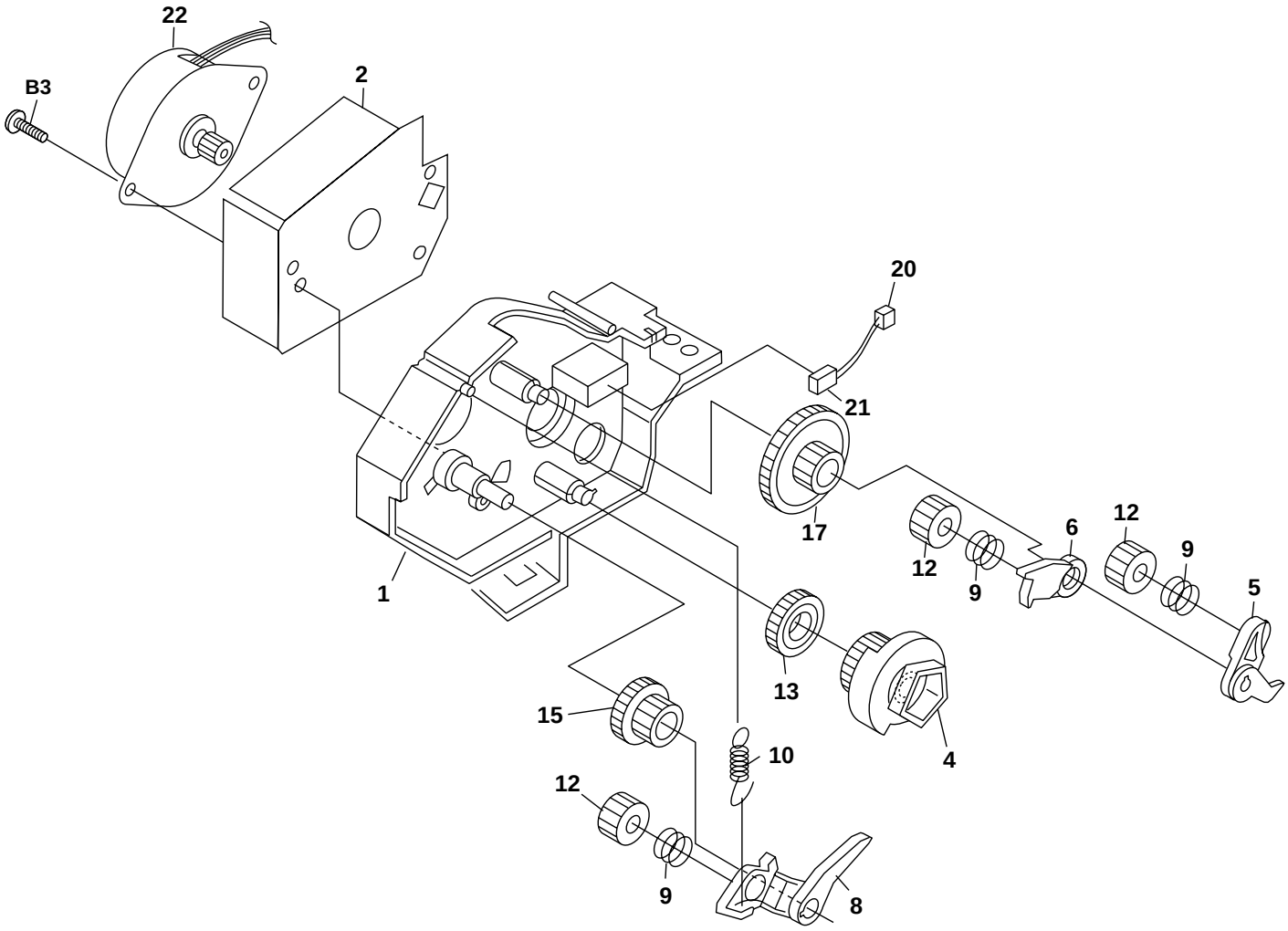
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[3] Upper cabinet					
1	CCNW-212AXH01	AK		C	Panel cable ass'y
3	GCABA2342FFSX		N	D	Upper cabinet [68]
	GCABA2342FFSY		N	D	Upper cabinet [78]
4	JBTN-2257FFSA			C	12 key [68]
	JBTN-2257FFSC			C	12 key [78]
5	JBTN-2258FFSA			C	Start key [68]
	JBTN-2258FFSC			C	Start key [78]
6	JBTN-2261FFSA			C	Direct key [68]
	JBTN-2261FFSC			C	Direct key [78]
7	DCEKP203CFF02		N	E	Operation panel PWB unit
8	JBTN-2262FFSA		N	C	TAD key [68]
	JBTN-2262FFSC		N	C	TAD key [78]
B2	XUBSD20P06000	AA		C	Screw(2x6)
	(Unit)				
901	DCEKK201CFF10		N	E	Operation panel unit [68]
	DCEKK201CFF11		N	E	Operation panel unit [78]

[4] Document guide upper



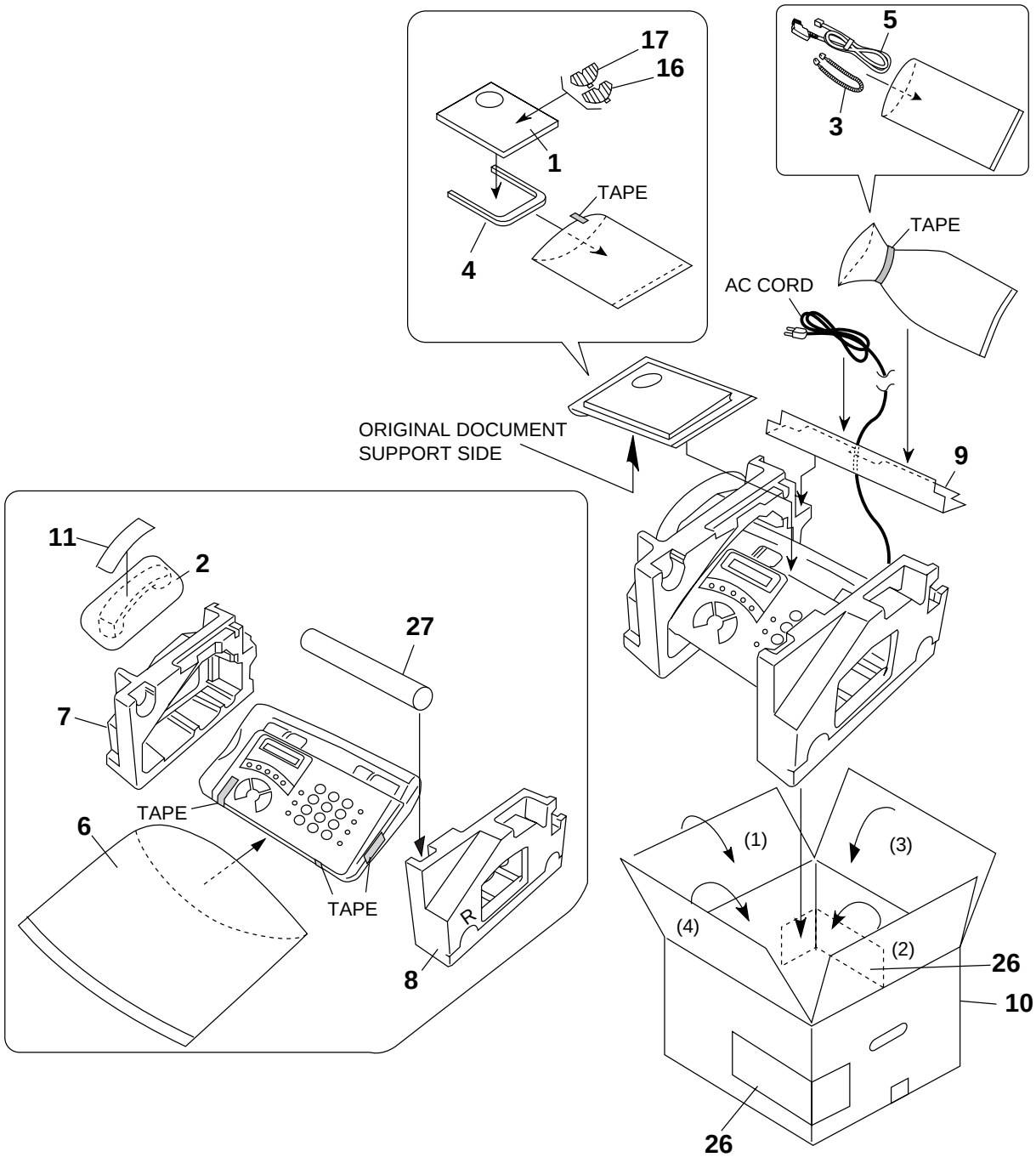
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[4] Document guide upper					
1	LPLTG2911XHZZ	AE		C	Separator rubber
2	LPLTP2908XHZZ	AE		C	Separator plate
3	LPLTP3051XHZZ	AB		C	Feed plate
4	MSPRT3140FFZZ			C	Separate spring
5	MSPRT3139FFZZ			C	Feed spring
6	PGIDM2554FFZZ			C	Document guide upper
7	PSHEZ3517FFZZ			C	Blind sheet

[5] Drive unit



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[5] Drive unit					
1	LFRM-2207XHZZ	AF		C	Drive unit frame
2	LPLTM3049XHZZ	AD		C	Motor plate
4	MCAMP2027XHZZ	AC		C	Cam
5	MLEVP2311XHZZ	AB		C	Planet lever A
6	MLEVP2312XHZZ	AB		C	Planet lever B
8	MLEVP2314XHZZ	AB		C	Mode lever
9	MSPRC2735XHZZ	AC		C	Planet gear spring
10	MSPRC3110XHZZ	AB		C	Cam spring
12	NGERH2278XHZZ	AC		C	Planet gear
13	NGERH2379XHZZ	AC		C	Idler gear,25Z
15	NGERH2391XHZZ	AC		C	Reduction gear,17/30Z
17	NGERH2475XHZZ	AB		C	Reduction gear,17/43Z
20	QCNW-4933XHZZ	AC		C	Cam switch cable
21	QSW-F2224SCZZ	AE		B	Cam switch
22	RMOTZ2148XHZZ	AT		B	Motor
B3	XEBSD30P08000	AA		C	Screw(3x8)

[6] Packing material & Accessories



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[6] Packing material & Accessories						
1	TINSG4052FFZZ		N	D	Operation manual	[68]
	TINSG4053FFZZ		N	D	Operation manual	[78]
2	DUNTK204CFFBG			E	Handset	[68]
	DUNTK204CFFWH			E	Handset	[78]
3	QCNW-3976XHBG	AK		C	Handset cord	[68]
	QCNW-3976XHOW	AK		C	Handset cord	[78]
4	PHOP-2105XHZZ	AD		C	Original document support	
5	QCNW-4649FFZZ			C	Telephone line cord	
6	SPAKP3385FFZZ			D	Vinyl cover	
7	SPAKA287BFFZZ			D	Packing add.,left	
8	SPAKA288BFFZZ			D	Packing add.,right	
9	SPAKA289BFFZZ			D	Pad	
10	SPAKC168BFFZZ			D	Packing case	
11	TLABM433AFFZZ		N	D	Pop label	
16	PGIDM2578XHZZ	AE		C	Paper roll shim,right	
17	PGIDM2579XHZZ	AE		C	Paper roll shim,left	
26	TLABM363BFFZZ		N	D	Box label	
27	TPAPK2205FFZZ		N	S	Fax paper(Initial starter roll 10m)	

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[7] Control PWB unit						
1	UBATL2046SCZZ	AK		B	Battery(CR2032T34)	[BAT1]
2	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C1]
3	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C3]
4	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C4]
5	VCEAGA1EW476M	AA		C	Capacitor(50WV 47μF)	[C5]
6	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C7]
7	VCEAGA1HW107M	AA		C	Capacitor(50WV 100μF)	[C8]
8	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C9]
9	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C10]
10	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μF)	[C11]
11	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C100]
12	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C101]
13	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C102]
14	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C103]
15	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C104]
16	VCCCTV1HH100D	AA		C	Capacitor(50WV 10PF)	[C105]
17	VCCCTV1HH100D	AA		C	Capacitor(50WV 10PF)	[C106]
18	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C107]
19	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C108]
20	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C109]
21	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C110]
22	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C111]
23	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C112]
24	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C113]
25	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C114]
26	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C115]
27	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C116]
28	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C117]
29	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C118]
30	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C119]
31	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C120]
32	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C122]
33	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C125]
34	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C126]
35	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C127]
36	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C128]
37	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C129]
38	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01μF)	[C130]
39	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C131]
40	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C132]
41	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C133]
42	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C134]
43	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF)	[C135]
44	VCCCTV1HH680J	AA		C	Capacitor(50WV 68PF)	[C136]
45	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C137]
46	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C138]
47	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C139]
48	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C140]
49	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C141]
50	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C144]
51	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C145]
52	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C146]
53	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C147]
54	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C148]
55	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C149]
56	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C150]
57	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C151]
58	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C152]
59	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C153]
60	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C154]
61	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C155]
62	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C156]
63	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C157]
64	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C158]
65	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C159]
66	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C160]
67	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C161]
68	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C162]
69	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C163]
70	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C164]
71	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C165]
72	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C166]
73	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C167]
74	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF)	[C168]
75	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C169]
76	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C170]
77	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C171]
78	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C172]
79	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C173]
80	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C175]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[7] Control PWB unit						
81	VCCCTV1HH180J	AA		C	Capacitor(50WV 18PF)	[C176]
82	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C177]
83	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C178]
84	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C179]
85	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C180]
86	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C181]
87	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C183]
88	VRS-TS2AD682J	AA		C	Resistor(1/10W 6.8KΩ ±5%)	[C184]
89	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C185]
90	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C186]
91	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1µF)	[C187]
92	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C188]
93	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C189]
94	VCKYTV1HB472K	AA		C	Capacitor(50WV 4700PF)	[C190]
95	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C191]
96	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C192]
97	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C193]
98	VCCCTV1HH220J	AA		C	Capacitor(50WV 22PF)	[C194]
99	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C195]
100	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C196]
101	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C197]
102	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C198]
103	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C199]
104	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C200]
105	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C201]
106	VCKYTV1EB104K	AA		C	Resistor(25WV 0.1µF)	[C202]
107	VCKYTV1HB821K	AA		C	Capacitor(50WV 820PF)	[C203]
108	VCKYTV1HB223K	AA		C	Capacitor(50WV 0.022µF)	[C204]
109	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C205]
110	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C206]
111	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C207]
112	VCCCTV1HH330J	AA		C	Capacitor(50WV 33PF)	[C208]
113	VCKYTV1HB221K	AA		C	Capacitor(50WV 220PF)	[C209]
114	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C210]
115	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1µF)	[C211]
116	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C212]
117	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[C213]
118	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1µF)	[C214]
119	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01µF)	[C215]
120	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C216]
121	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C217]
122	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C218]
123	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C219]
124	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C220]
125	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C221]
126	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C222]
127	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C223]
128	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C224]
129	QCNCM7014SC0G	AB		C	Connector(7pin)	[CNCIS]
130	QCNCM2442SC0B	AB		C	Conector(2pin)	[CNCSW]
131	QCNCM705BAF06	AB		C	Connector(2pin)	[CNDR]
132	QCNCM7014SC0B	AD		C	Connector(2pin)	[CNFRS]
133	QCNCW2500SC1B	AF		C	Connector(12pin)	[CNLIUA]
134	QCNCW2500SC0E			C	Connector(5pin)	[CNLIUB]
135	QCNCM7014SC0F	AB		C	Connector(6pin)	[CNMT]
136	QCNCM7014SC1F	AD		C	Connector(16pin)	[CNPN]
137	QCNCW2500SC0H	AF		C	Connector(8pin)	[CNPW]
138	QCNCM2401SC0B	AA		C	Connector(2pin)	[CNSP]
139	QCNCM7014SC1F	AD		C	Connector(16pin)	[CNTH]
140	VRS-HT3AA101J	AA		C	Resistor(1W 100Ω ±5%)	[D1]
141	VHD1SS355//-1	AB		B	Diode(1SS355)	[D2]
142	VHD1SS355//-1	AB		B	Diode(1SS355)	[D3]
143	VHD1SS355//-1	AB		B	Diode(1SS355)	[D4]
144	VHD1SS355//-1	AB		B	Diode(1SS355)	[D5]
145	VHDRB705D//-1	AD		B	Diode(RB705D)	[D6]
146	QFS-P2010SCZZ	AD		B	IC protector(KAB2402)	[FU100]
147	VHIULN2003ANS	AE		B	IC(ULN2003A)	[IC1]
148	VHITC7WT74FU1	AF		B	IC(TC7WT74)	[IC2]
149	VHIFC2FM209V1	BK	N	B	IC(FC200)(Within IC3 and IC5 pair)	[IC3]
150	VHIKM29W040-1	AV		B	IC(KM29W040T)	[IC4]
151	VHIFC2FM209V1	BK	N	B	IC(FM209V)(Within IC3 and IC5 pair)	[IC5]
152	VHIW24258S7LE	AQ		B	IC(W24258S-70LE)	[IC6]
153	VHIXC61AN45M1	AE		B	IC(XC61AN4502ML)	[IC7]
154	VHITC4S66F/-1	AC		B	IC(TC4S66F)	[IC8]
155	VHIHCF4051M1T	AG		B	IC(HCF4051)	[IC9]
156	QSOCZ0115SC32	AC		C	IC socket(32pin)	[IC10]
157	VHI27020FPB0C	BN	N	B	IC,EPROM(2MB)	[IC10]
158	VHINJM2904M-2	AG		B	IC(NJM2904M)	[IC11]
159	VHINJM2113M-1	AG		B	IC(NJM2113)	[IC12]
160	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L100]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[7] Control PWB unit						
161	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L101]
162	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L102]
163	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L103]
164	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L104]
165	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L105]
166	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L106]
167	VRS-TS2AD152J	AA		C	Resistor(1/10W 1.5KΩ ±5%)	[L107]
168	RCILZ2145XHZZ	AF		C	Coil(HM601)	[L108]
169	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L110]
170	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L111]
171	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PI2]
172	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q1]
173	VS2SA1037KS-1	AB		B	Transistor(2SA1037KS)	[Q2]
174	VS2SC2412KS-1	AB		B	Transistor(2SC2412-K)	[Q3]
175	VS2SA1037KS-1	AB		B	Transistor(2SA1037KS)	[Q4]
176	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q5]
177	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q6]
178	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q7]
179	VRD-HT2HY222J	AA		C	Resistor(1/2W 2.2KΩ ±5%)	[R1]
180	VRD-HT2HY222J	AA		C	Resistor(1/2W 2.2KΩ ±5%)	[R2]
181	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R100]
182	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R101]
183	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R102]
184	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R103]
185	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R106]
186	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R107]
187	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R108]
188	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R109]
189	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R110]
190	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R111]
191	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R112]
192	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R113]
193	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R114]
194	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R115]
195	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R116]
196	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R117]
197	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R118]
198	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R119]
199	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R120]
200	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R121]
201	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R122]
202	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R123]
203	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R124]
204	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R125]
205	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R126]
206	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R127]
207	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%)	[R128]
208	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R129]
209	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R130]
210	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R131]
211	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R132]
212	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R133]
213	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R134]
214	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R135]
215	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R136]
216	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R137]
217	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R138]
218	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R139]
219	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R140]
220	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R141]
221	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R142]
222	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R143]
223	VRS-TS2AD433J	AA		C	Resistor(1/10W 43KΩ ±5%)	[R144]
224	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R145]
225	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R146]
226	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R147]
227	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R148]
228	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R149]
229	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R150]
230	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R151]
231	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R152]
232	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R153]
233	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R154]
234	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%)	[R156]
235	VRS-TS2AD512J	AA		C	Resistor(1/10W 5.1KΩ ±5%)	[R157]
236	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R158]
237	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R159]
238	VRS-TS2AD222J	AA		C	Resistor(1/10W 2.2KΩ ±5%)	[R160]
239	VRS-TS2AD3R0J	AA		C	Resistor(1/10W 3.0Ω ±5%)	[R161]
240	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R162]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[7] Control PWB unit						
241	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R163]
242	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R164]
243	VRS-TS2AD512J	AA		C	Resistor(1/10W 5.1KΩ ±5%)	[R165]
244	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R166]
245	VRS-TS2AD106J	AA		C	Resistor(1/10W 10MΩ ±5%)	[R167]
246	VRS-TS2AD105J	AA		C	Resistor(1/10W 1.0MΩ ±5%)	[R168]
247	VRS-TS2AD121J	AA		C	Resistor(1/10W 120Ω ±5%)	[R169]
248	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R170]
249	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R171]
250	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R172]
251	VRSTS2AD1183F	AA		C	Resistor(1/10W 118KΩ ±1%)	[R173]
252	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R175]
253	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[R176]
254	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R177]
255	VRS-TS2AD123J	AA		C	Resistor(1/10W 12KΩ ±5%)	[R178]
256	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R179]
257	VRS-TS2AD474J	AA		C	Resistor(1/10W 470KΩ ±5%)	[R183]
258	VRS-TS2AD754J	AA		C	Resistor(1/10W 750KΩ ±5%)	[R184]
259	VRS-TS2AD304J	AA		C	Resistor(1/10W 300KΩ ±5%)	[R185]
260	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R186]
261	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R187]
262	VRS-TS2AD393J	AA		C	Resistor(1/10W 39KΩ ±5%)	[R188]
263	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R189]
264	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R190]
265	VRS-TS2AD133J	AA		C	Resistor(1/10W 13KΩ ±5%)	[R192]
266	VRS-TS2AD513J	AA		C	Resistor(1/10W 51KΩ ±5%)	[R193]
267	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R194]
268	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[R195]
269	VRS-TS2AD473J	AA		C	Resistor(1/10W 47KΩ ±5%)	[R196]
270	VRSTS2AD1183F	AA		C	Resistor(1/10W 118KΩ ±1%)	[R197]
271	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R198]
272	VRS-TS2AD153J	AA		C	Resistor(1/10W 15KΩ ±5%)	[R199]
273	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R201]
274	VRS-TS2AD204J	AA		C	Resistor(1/10W 200KΩ ±5%)	[R202]
275	VRS-TS2AD302J	AA		C	Resistor(1/10W 3KΩ ±5%)	[R203]
276	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R204]
277	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R205]
278	VRS-TS2AD474J	AA		C	Resistor(1/10W 470KΩ ±5%)	[R208]
279	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R209]
280	VRS-TS2AD224J	AA		C	Resistor(1/10W 220KΩ ±5%)	[R210]
281	VRS-TS2AD562J	AA		C	Resistor(1/10W 5.6KΩ ±5%)	[R211]
282	VRS-TS2AD201J	AG		C	Resistor(1/10W 200Ω ±5%)	[R212]
283	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R213]
284	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R214]
285	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R215]
286	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R216]
287	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R217]
288	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R218]
289	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R219]
290	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R220]
291	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R221]
292	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA1]
293	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA2]
294	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA3]
295	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA4]
296	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA5]
297	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA6]
298	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA7]
299	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA8]
300	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA9]
301	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA10]
302	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA11]
303	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA12]
304	RR-TZ3017SCZZ	AC		C	Block resistor(270Ωx4)	[RA13]
305	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA14]
306	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA15]
307	RR-TZ3018SCZZ	AC		C	Block resistor(470Ωx4)	[RA16]
308	VHI62FP332P-1	AF		B	IC(XC62FP3302P)	[REQ100]
309	RRLYD3138XHZZ	AG		B	Relay(DQ1U24VDC)	[RY1]
310	RCRSQ2157SCZZ	AF		B	Crystal(32.256MHz)	[X1]
311	RCRSB0297AFZZ	AD		B	Crystal(32.768kHz)	[X2]
	(Unit)					
901	CPWBX3094FF01		N	E	Control PWB unit(Without ROM)	
[8] TEL/LIU PWB unit						
⚠ 1	VHVRA501PV6-1	AE		B	Varistor(RA-501P-V6-2)	[AR1]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[8] TEL/LIU PWB unit						
⚠ 2	VHVRA501PV6-1	AE		B	Varistor(RA-501P-V6-2)	[AR2]
3	QCNW-4753XHZZ	AE		C	Cable	[ARG]
4	VCQYNA1HM474K	AE		C	Capacitor(50WV 0.47μF)	[C1]
5	RC-FZ3053FFZZ			C	Capacitor(250WV 1.0μF)	[C2]
6	RC-FZ3055FFZZ			C	Capacitor(250WV 0.47μF)	[C3]
7	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C4]
8	VCEAGA1HW335M	AB		C	Capacitor(50WV 3.3μF)	[C5]
9	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C6]
10	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7μF)	[C7]
11	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μF)	[C8]
12	VCEAGA1HW225M	AA		C	Capacitor(50WV 2.2μF)	[C10]
13	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C11]
14	VCEAGA1EW476M	AA		C	Capacitor(50WV 47μF)	[C12]
15	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C13]
16	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01μF)	[C101]
17	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01μF)	[C102]
18	VCKYTQ1HB223K	AB		C	Capacitor(50WV 0.022μF)	[C103]
19	VCKYTQ1HB333K	AA		C	Capacitor(50WV 0.033μF)	[C104]
20	VCKYTQ1HB223K	AB		C	Capacitor(50WV 0.022μF)	[C105]
21	VCKYTV1HB473K	AA		C	Capacitor(50WV 0.047μF)	[C106]
22	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C107]
23	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C109]
24	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C110]
25	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C111]
26	VCKYTQ1HB103K	AA		C	Capacitor(50WV 0.01μF)	[C115]
27	VRS-TP2BD000J	AA		C	Resistor(1/8W 0Ω ±5%)	[C116]
28	VCKYTQ1HB563K	AA		C	Capacitor(50WV 0.056μF)	[C118]
29	VCCCTV1HH101J	AA		C	Capacitor(50WV 100PF)	[C119]
30	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C120]
31	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C121]
32	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C122]
33	VCKYTV1HB122K	AB		C	Capacitor(50WV 1200PF)	[C123]
34	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C124]
35	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C125]
36	VCKYTV1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C126]
37	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01μF)	[C127]
⚠ 38	RRLYZ3427SCZZ	AN		B	Relay	[CML]
39	QJAKZ2079XH0D	AD		C	Jack	[CNHJ]
40	QCNCM2548SC1B	AH		C	Connector(12pin)	[CNLIUA]
41	QCNCM2548SC0E			C	Connector(5pin)	[CNLIUB]
42	QJAKZ2073SCFF	AE		C	Jack	[CNLNJ]
43	QJAKZ2073SCFD	AE		C	Jack	[CNTLJ]
44	RH-DX0045BMZZ			B	Diode(1N4148)	[D1]
45	RH-DX0045BMZZ			B	Diode(1N4148)	[D2]
46	RH-DX0045BMZZ			B	Diode(1N4148)	[D3]
47	RH-DX0045BMZZ			B	Diode(1N4148)	[D4]
48	QSW-Z2263XHZZ	AG		B	Hook switch	[HOOK SW]
49	VHILMT2904DR2			B	IC(LMT2904DR)	[IC101]
50	VHILMT2904DR2			B	IC(LMT2904DR)	[IC102]
51	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L2A]
52	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L2B]
53	RCILF2125SCZZ	AD		C	Coil(4.7mH)	[L3]
54	RCILF2125SCZZ	AD		C	Coil(4.7mH)	[L5]
⚠ 55	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L6]
⚠ 56	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L7]
⚠ 57	RFILN2027XHZZ	AC		C	Coil(R-5C)	[L8]
⚠ 58	VHPTLP627//-1	AH		B	Photo coupler(TLP627)	[PC2]
⚠ 59	VHPTLP627//-1	AH		B	Photo coupler(TLP627)	[PC3]
⚠ 60	VHPTLP521-1BL	AE		B	Photo coupler(TLP521)	[PC5]
⚠ 61	VHPTLP521-1BL	AE		B	Photo coupler(TLP521)	[PC6]
62	VS2SA1807-P-1	AE		B	Transistor(2SA1807)	[Q1]
63	VS2N5401///-1			B	Transistor(2N5401)	[Q2]
64	VSBS108////-1	AE		B	FET(BS108)	[Q3]
65	VSBC847B///-1			B	Transistor(BC847B)	[Q101]
66	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q102]
67	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q106]
68	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q108]
69	VSDPC114EK/-1			B	Transistor(PDTC114)	[Q110]
70	VRD-HT2HY473J	AA		C	Resistor(1/2W 47KΩ ±5%)	[R2]
71	VRS-HT3LA821J			C	Resistor(3W 820Ω ±5%)	[R3]
72	VRS-TS2AD161J	AA		C	Resistor(1/10W 160Ω ±5%)	[R101]
73	VRS-TS2AD124J	AA		C	Resistor(1/10W 120KΩ ±5%)	[R102]
74	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R103]
75	VRS-TP2BD120J			C	Resistor(1/8W 12Ω ±5%)	[R104]
76	VRS-TS2AD474J	AA		C	Resistor(1/10W 470KΩ ±5%)	[R105]
77	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R107]
78	VRS-TP2BD560J	AA		C	Resistor(1/8W 56Ω ±5%)	[R108]
79	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R109]
80	VRS-TP2BD150J	AA		C	Resistor(1/8W 15Ω ±5%)	[R110]
81	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R111]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[8] TEL/LIU PWB unit						
82	VRS-TP2BD470J	AA		C	Resistor(1/8W 47Ω ±5%)	[R112]
83	VRS-TS2AD152J	AA		C	Resistor(1/10W 1.5KΩ ±5%)	[R114]
84	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R115]
85	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R116]
86	VRS-TS2AD163J	AA		C	Resistor(1/10W 16KΩ ±5%)	[R117]
87	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R118]
88	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R119]
89	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R120]
90	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R121]
91	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R122]
92	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R123]
93	VRS-TS2AD473J	AA		C	Resistor(1/10W 47KΩ ±5%)	[R124]
94	VRS-TS2AD243J	AA		C	Resistor(1/10W 24KΩ ±5%)	[R125]
95	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R126]
96	VRS-TS2AD822J	AA		C	Resistor(1/10W 8.2KΩ ±5%)	[R128]
97	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R129]
98	VRS-TS2AD222J	AA		C	Resistor(1/10W 2.2KΩ ±5%)	[R131]
99	VRS-TS2AD391J	AA		C	Resistor(1/10W 390Ω ±5%)	[R133]
100	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R134]
101	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%)	[R135]
102	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R136]
103	VRS-TS2AD751J	AA		C	Resistor(1/10W 750Ω ±5%)	[R137]
104	VRS-TS2AD244J	AA		C	Resistor(1/10W 240KΩ ±5%)	[R138]
105	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R139]
106	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%)	[R140]
107	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R141]
108	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R142]
109	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R143]
110	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R144]
111	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R145]
112	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[R147]
113	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R148]
114	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R149]
115	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R152]
116	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R153]
117	VHDS1ZB60//-1	AC		B	Diode bridge(S1ZB60)	[REC1]
⚠ 118	RTRNI2165XHZZ	AG		B	Transformer	[T1]
⚠ 119	VHVDSS301L/-U	AF		B	Varistor(DSS-301L)	[VA1]
120	VHVSIOVS05K60			B	Varistor(SIOV-S05K60T)	[VA2]
121	VHEBZX79B20/A	AC		B	Zener diode(BZX79B20V)	[ZD1]
122	VHEBZX79B6V8A			B	Zener diode(BZX79B6V8)	[ZD2]
123	VHEBZX79B20/A	AC		B	Zener diode(BZX79B20V)	[ZD3]
124	VHEBZX79B3V3A			B	Zener diode(BZX79B3V3)	[ZD6]
125	VHEBZX79B3V3A			B	Zener diode(BZX79B3V3)	[ZD7]
	(Unit)					
901	DCEKL227CFF01			E	TEL/Liu PWB unit	
[9] Power supply PWB unit						
1	0CBUGFM224KR/	AF		C	Capacitor(RE224-C)	[C1]
2	0CBUGZ1072ZZ/	AN		C	Capacitor(KMF400VB68M)	[C2]
3	0CBUGCV102HZ/	AD		C	Capacitor(ECKZ3D102KBP)	[C3]
4	0CBUGXAEF222/	AC		C	Capacitor(GRM40B222K50PT)	[C4]
5	0CBUEXCAO000/	AB		C	Resistor(MCR10EZHJ000)	[C6]
6	0CBUGCM392BJ/	AF		C	Capacitor(DE1510-1E392M-KX)	[C7]
7	0CBUGAE561TS/	AH		C	Capacitor(LXJ35VB560(M))	[C8]
8	0CBUGFF474JA/	AF		C	Capacitor(ECQV1H474JL3)	[C9]
9	0CBUGAC222VV/	AK		C	Capacitor(LXZ16VB2200(K))	[C10]
10	0CBUGXAED104/	AC		C	Capacitor(GRM40B104K25PT)	[C12]
11	0CBUGZ1041ZZ/	AF		C	Capacitor(DE1007E222M-KH)	[C15]
12	0CBUGAB101RV/	AF		C	Capacitor(KME10VB100(M))	[C16]
13	0CBUGXAEF102/	AC		C	Capacitor(GRM40B102K50PT)	[C17]
14	0CBUGCU681BR/	AC		C	Capacitor(DEO805R681K1K-MHR)	[C21]
15	0CBUGFF223EH/	AC		C	Capacitor(AMZV-223J50)	[C24]
16	0CBPKZ0194ZZ/	AC		C	Base post ass'y(B 2P3-VH)	[CN1]
17	0CBPCZ0275ZZ/	AD		C	Connector(8PL-FJ)	[CN2]
18	0CBUBC0125DK/	AD		B	Diode(ERA15-06)	[D1]
19	0CBUBC0125DK/	AD		B	Diode(ERA15-06)	[D2]
20	0CBUBC0125DK/	AD		B	Diode(ERA15-06)	[D3]
21	0CBUBC0125DK/	AD		B	Diode(ERA15-06)	[D4]
22	0CBUBY0020AK/	AD		B	Diode(1SS355)	[D5]
23	0CBUBC0336AZ/	AL		B	Diode(S3L20U-4004P15)	[D7]
24	0CBUBC0302BZ/	AE		B	Diode(SR140)	[D8]
25	0CBPJCEJ1601/	AH		A	Current fuse(21501.6 ME600)	[F1]
26	0CBPJCEJ1601/	AH		A	Current fuse(21501.6 ME600)	[F2]
27	0CBPZZ0906ZZ/	AH		A	Circuit protect chip(CCP2E100)	[F3]
28	0CBBFZ89256Z/	AD		B	Beads core(BL02RNI-R62T4)	[FB1]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[9] Power supply PWB unit						
29	0CBUCB0199AZ/	AR		B	IC(UPC29M05AHF)	[IC1]
30	0CBUKZ0826ZZ/	AK		C	Filter(ELF15N003A)	[L1]
31	0CBUZZ0156ZZ/	AN		C	Coil(RS208)	[L2]
32	0CBPZZ0940ZZ/	AB		C	Jumper(J1/6Z-T26-A)	[L3]
33	0CBLRZ6616ZN/	AQ		C	Heat sink(MN903-5001AT)	[MT1]
34	0CBLRZ6619ZQ/	AQ		C	Heat sink(MF903-5002AT)	[MT2]
35	0CBUDC0163CZ/	AG		B	Photo coupler(PC123YS)	[PC1]
36	0CBUDC0163CZ/	AG		B	Photo coupler(PC123YS)	[PC2]
37	0CBUAG0161AC/	AQ		B	FET(FS5KM-18A-AN)	[Q1]
38	0CBUDA0128AK/	AD		B	Transistor(2SD2114K)	[Q2]
39	0CBUAY0016CK/	AD		B	Transistor(2SC2412K)	[Q3]
40	0CBUAY0016CK/	AD		B	Transistor(2SC2412K)	[Q4]
41	0CBUAC0289AK/	AD		B	Transistor(2SC4210)	[Q5]
42	0CBUAC0289AK/	AD		B	Transistor(2SC4210)	[Q6]
43	0CBUEEC335CH/	AC		C	Resistor(RDM12TB335J)	[R1]
44	0CBUEEC105CH/	AC		C	Resistor(RDM12TB105J)	[R2]
45	0CBUEEC105CH/	AC		C	Resistor(RDM12TB105J)	[R3]
46	0CBUEXCAS331/	AB		C	Resistor(CR21TR331J)	[R4]
47	0CBUEXCAS152/	AB		C	Resistor(CR21TR152J)	[R5]
48	0CBUEXCAS183/	AB		C	Resistor(CR21TR183J)	[R6]
49	0CBUEXCAS330/	AB		C	Resistor(CR21TR330J)	[R7]
50	0CBUEXCAS473/	AB		C	Resistor(CR21TR473J)	[R8]
51	0CBUEXCAS471/	AB		C	Resistor(CR21TR471J)	[R9]
52	0CBUEFDR33DB/	AE		C	Resistor(RSMF1TBR33G)	[R10]
53	0CBUEXCAS390/	AB		C	Resistor(CR21TR390J)	[R11]
54	0CBUEXCAS184/	AB		C	Resistor(CR21TR184J)	[R12]
55	0CBUEXCAS472/	AB		C	Resistor(CR21TR472J)	[R13]
56	0CBUEXCAS152/	AB		C	Resistor(CR21TR152J)	[R14]
57	0CBUEXCAS334/	AB		C	Resistor(CR21TR334J)	[R15]
58	0CBUEXCAS223/	AB		C	Resistor(CR21TR223J)	[R16]
59	0CBUEXCAS822/	AB		C	Resistor(CR21TR822J)	[R17]
60	0CBUEXCAS273/	AB		C	Resistor(CR21TR273J)	[R18]
61	0CBUEXCAS472/	AB		C	Resistor(CR21TR472J)	[R19]
62	0CBUEXCAS472/	AB		C	Resistor(CR21TR472J)	[R20]
63	0CBUEXCAS154/	AB		C	Resistor(CR21TR154J)	[R21]
64	0CBUEXCAS103/	AB		C	Resistor(CR21TR103J)	[R25]
65	0CB829655027/	BE		B	Transformer(PTTP124-KTT)	[T1]
66	0CBUDC0232AK/	AF		B	Thermistor(KL07L8R2TB)	[TH1]
67	0CBUEZ0507ZZ/	AD		B	Varistor(ERZV07D471)	[V1]
68	0CBUFBA102FE/	AD		B	Variable resistor(ENV CYA A01 B13)	[VR1]
69	0CBUBDAX270A/	AD		B	Zener diode(RD27SB)	[ZD1]
70	0CBUBXAD2R0A/	AD		B	Zener diode(RD2.0SB)	[ZD2]
71	0CBUBDBM300D/	AC		B	Zener diode(RD30FB)	[ZD4]
72	0CBUBXAD6R2C/	AD		B	Zener diode(RD6.2SB)	[ZD5]
73	0CBUBDBE200D/	AD		B	Zener diode(RD20ESAB)	[ZD7]
	(Unit)					
⚠ 901	RDENT2144XHZZ	BA		E	Power supply PWB unit	

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PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
[C]				
CCNW-212AXH01	1-2	AK		C
〃	3-1	AK		C
CCNW-215AFF01	1-12			C
CPWBX3094FF01	1-45		N	E
〃	7-901		N	E
[D]				
DCEKK201CFF10	1-1		N	E
〃	3-901		N	E
DCEKK201CFF11	1-1		N	E
〃	3-901		N	E
DCEKL227CFF01	1-16			E
〃	8-901			E
DCEKP203CFF02	3-7		N	E
DUNTK204CFFBG	6-2			E
DUNTK204CFFWH	6-2			E
[G]				
GCABA2342FFSX	3-3		N	D
GCABA2342FFSY	3-3		N	D
GCABB2343FFSA	1-13			D
GCABB2343FFSC	1-13			D
GCASP2110FFSD	1-17		N	C
GCASP2110FFSE	1-17		N	C
GCASP2111FFSA	1-18		N	C
GCASP2111FFSC	1-18		N	C
GDAI-2082XHSA	1-46	AD		C
GDAI-2082XHSC	1-46			C
GDAI-2083FFZZ	1-22			C
[H]				
HPNLH2393XHSJ	1-54		N	D
HPNLH2393XHSP	1-54		N	D
[J]				
JBTN-2257FFSA	3-4			C
JBTN-2257FFSC	3-4			C
JBTN-2258FFSA	3-5			C
JBTN-2258FFSC	3-5			C
JBTN-2261FFSA	3-6			C
JBTN-2261FFSC	3-6			C
JBTN-2262FFSA	3-8		N	C
JBTN-2262FFSC	3-8		N	C
[L]				
LBSHP2110XHZZ	2-1	AB		C
LBSHP2112XHZZ	1-28	AB		C
LFRM-2207XHZZ	5-1	AF		C
LFRM-2208XHZZ	1-29	AF	N	C
LFRM-2209FFZZ	2-2			C
LHLDW1033CE00	1-55	AA		C
〃	2-19	AA		C
LHLDZ2180XHZZ	2-3	AC		C
LHLDZ2181XHZZ	2-4	AC		C
LHLDZ2184XHZZ	1-30	AC		C
LHLDZ2185XHZZ	1-31	AC		C
LPLTG2911XHZZ	4-1	AE		C
LPLTM3049XHZZ	5-2	AD		C
LPLTM3107XHZZ	1-56	AD	N	C
LPLTP2908XHZZ	4-2	AE		C
LPLTP3051XHZZ	4-3	AB		C
LSTPP2054XHZZ	1-47	AC		C
LX-BZ2138FFZZ	1-B1			C
[M]				
MCAMP2027XHZZ	5-4	AC		C
MLEVP2311XHZZ	5-5	AB		C
MLEVP2312XHZZ	5-6	AB		C
MLEVP2314XHZZ	5-8	AB		C
MLEVP2316XHZZ	1-23	AC		C
MLEVP2317XHZZ	2-5	AB		C
MLEVP2319XHZZ	1-49	AC		C
MLEVP2320XHZZ	1-19	AC		C
MLEVP2321XHZZ	1-58	AN		C
MSPRC2735XHZZ	5-9	AC		C
MSPRC2954FFZZ	1-5			C
MSPRC3110XHZZ	5-10	AB		C
MSPRC3112FFZZ	1-33			C
MSPRC3117FFZZ	2-6			C
MSPRC3148FFZZ	1-34			C
MSPRD3116FFZZ	1-24			C
MSPRP3119XHZZ	1-14	AC		C
MSPRP3123XHZZ	1-15	AC		C
MSPRT3139FFZZ	4-5			C
MSPRT3140FFZZ	4-4			C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
[N]				
NGERH2278XHZZ	5-12	AC		C
NGERH2379XHZZ	5-13	AC		C
NGERH2391XHZZ	5-15	AC		C
NGERH2475XHZZ	5-17	AB		C
NGERH2478XHZZ	1-36	AB		C
NGERH2479XHZZ	2-7	AB		C
NGERH2480XHZZ	2-8	AB		C
NGERH2481XHZZ	2-9	AB		C
NGERP2318XHZZ	1-6	AD		C
NROLR2375XHZZ	2-10	AL		C
NROLR2425XHZZ	1-37	AP		C
NROLR2428XHZZ	2-11	AP		C
NSFTZ2273XHZZ	2-12	AF		C
[P]				
PGIDM2554FFZZ	4-6			C
PGIDM2560XHSA	1-7	AC		C
PGIDM2560XHSC	1-7			C
PGIDM2561XHSA	1-8	AC		C
PGIDM2561XHSC	1-8			C
PGIDM2562XHZZ	2-13	AD		C
PGIDM2563XHSA	1-27	AE		C
PGIDM2563XHSC	1-27	AC		C
PGIDM2566XHZZ	1-52	AC		C
PGIDM2578XHZZ	6-16	AE		C
PGIDM2579XHZZ	6-17	AE		C
PHOP-2104FFSA	1-9			C
PHOP-2104FFSC	1-9			C
PHOP-2105XHZZ	6-4	AD		C
PSHEZ3410FFZZ	1-57		N	C
PSHEZ3517FFZZ	4-7			C
PSHEZ3543XHZZ	2-21	AE	N	C
[Q]				
QACCE2013BMZZ	1-20			B
QCNCM2401SC0B	7-138	AA		C
QCNCM2442SC0B	7-130	AB		C
QCNCM2548SC0E	8-41			C
QCNCM2548SC1B	8-40	AH		C
QCNCM7014SC0B	7-132	AD		C
QCNCM7014SC0F	7-135	AB		C
QCNCM7014SC0G	7-129	AB		C
QCNCM7014SC1F	7-136	AD		C
〃	7-139	AD		C
QCNCM705BAF06	7-131	AB		C
QCNCW2500SC0E	7-134			C
QCNCW2500SC0H	7-137	AF		C
QCNCW2500SC1B	7-133	AF		C
QCNW-209AXHZZ	1-39	AH		C
QCNW-210AXHZZ	1-40	AC		C
QCNW-213AXHZZ	2-16	AC		C
QCNW-352AFFZZ	2-22		N	C
QCNW-3976XHBG	6-3	AK		C
QCNW-3976XHOW	6-3	AK		C
QCNW-4649FFZZ	6-5			C
QCNW-4753XHZZ	8-3	AE		C
QCNW-4814XHZZ	2-15	AG		C
QCNW-4933XHZZ	5-20	AC		C
QFS-P2010SCZZ	7-146	AD		B
QJAKZ2073SCFD	8-43	AE		C
QJAKZ2073SCFF	8-42	AE		C
QJAKZ2079XH0D	8-39	AD		C
QSOCZ0115SC32	7-156	AC		C
QSW-F2224SCZZ	5-21	AE		B
QSW-M2293XHZZ	2-17	AE		B
QSW-M2296XHZZ	1-11	AD		B
QSW-Z2263XHZZ	8-48	AG		B
[R]				
RC-FZ3053FFZZ	8-5			C
RC-FZ3055FFZZ	8-6			C
RCILF2125SCZZ	8-53	AD		C
〃	8-54	AD		C
RCILZ2145XHZZ	7-160	AF		C
〃	7-161	AF		C
〃	7-162	AF		C
〃	7-163	AF		C
〃	7-164	AF		C
〃	7-165	AF		C
〃	7-166	AF		C
〃	7-168	AF		C
RCORF2063XHZZ	2-20	AF		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
RCORF2064XHZZ	1-53	AF		B
RCRSB0297AFZZ	7-311	AD		B
RCRSQ2157SCZZ	7-310	AF		B
RDENT2144XHZZ	1-21	BA		E
〃	9-901	BA		E
RFILN2027XHZZ	8-51	AC		C
〃	8-52	AC		C
〃	8-55	AC		C
〃	8-56	AC		C
〃	8-57	AC		C
RH-DX0045BMZZ	8-44			B
〃	8-45			B
〃	8-46			B
〃	8-47			B
RHEDZ2059XHZZ	1-41	BF		B
RMOTZ2148XHZZ	5-22	AT		B
RR-TZ3017SCZZ	7-292	AC		C
〃	7-294	AC		C
〃	7-295	AC		C
〃	7-297	AC		C
〃	7-298	AC		C
〃	7-299	AC		C
〃	7-303	AC		C
〃	7-304	AC		C
RR-TZ3018SCZZ	7-293	AC		C
〃	7-296	AC		C
〃	7-300	AC		C
〃	7-301	AC		C
〃	7-302	AC		C
〃	7-305	AC		C
〃	7-306	AC		C
〃	7-307	AC		C
RRLYD3138XHZZ	7-309	AG		B
RRLYZ3427SCZZ	8-38	AN		B
RTRNI2165XHZZ	8-118	AG		B
RUNTZ2054XHZZ	2-18	BE		B
[S]				
SPAKA287BFFZZ	6-7			D
SPAKA288BFFZZ	6-8			D
SPAKA289BFFZZ	6-9			D
SPAKC168BFFZZ	6-10			D
SPAKP3385FFZZ	6-6			D
[T]				
TINSG4052FFZZ	6-1		N	D
TINSG4053FFZZ	6-1		N	D
TLABM363BFFZZ	6-26		N	D
TLABM433AFFZZ	6-11		N	D
TPAPK2205FFZZ	6-27		N	S
[U]				
UBATL2046SCZZ	7-1	AK		B
[V]				
VCCCTV1HH100D	7-16	AA		C
〃	7-17	AA		C
VCCCTV1HH101J	8-29	AA		C
VCCCTV1HH180J	7-81	AA		C
VCCCTV1HH220J	7-47	AA		C
〃	7-48	AA		C
〃	7-82	AA		C
〃	7-84	AA		C
〃	7-85	AA		C
〃	7-86	AA		C
〃	7-97	AA		C
〃	7-98	AA		C
VCCCTV1HH330J	7-112	AA		C
VCCCTV1HH680J	7-43	AA		C
〃	7-44	AA		C
VCEAGA1EW476M	7-3	AA		C
〃	7-5	AA		C
〃	7-6	AA		C
〃	7-10	AA		C
〃	8-14	AA		C
VCEAGA1HW106M	7-2	AA		C
〃	7-4	AA		C
〃	7-8	AA		C
〃	8-7	AA		C
〃	8-11	AA		C
VCEAGA1HW107M	7-7	AA		C
VCEAGA1HW225M	8-12	AA		C
VCEAGA1HW226M	7-9	AB		C
〃	8-9	AB		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCEAGA1HW226M	8-13	AB		C
〃	8-15	AB		C
VCEAGA1HW335M	8-8	AB		C
VCEAGA1HW475M	8-10	AA		C
VCKYTQ1HB103K	8-26	AA		C
VCKYTQ1HB223K	8-18	AB		C
〃	8-20	AB		C
VCKYTQ1HB333K	8-19	AA		C
VCKYTQ1HB563K	8-28	AA		C
VCKYTV1CF105Z	7-22	AB		C
〃	7-26	AB		C
〃	7-27	AB		C
〃	7-33	AB		C
〃	7-34	AB		C
〃	7-36	AB		C
〃	7-37	AB		C
〃	7-39	AB		C
〃	7-42	AB		C
〃	7-52	AB		C
〃	7-54	AB		C
〃	7-55	AB		C
〃	7-56	AB		C
〃	7-58	AB		C
〃	7-59	AB		C
〃	7-60	AB		C
〃	7-63	AB		C
〃	7-66	AB		C
〃	7-69	AB		C
〃	7-71	AB		C
〃	7-75	AB		C
〃	7-77	AB		C
〃	7-78	AB		C
〃	7-83	AB		C
〃	7-89	AB		C
〃	7-90	AB		C
〃	7-93	AB		C
〃	7-95	AB		C
〃	7-99	AB		C
〃	7-105	AB		C
〃	7-111	AB		C
〃	7-114	AB		C
〃	7-116	AB		C
〃	7-253	AB		C
VCKYTV1EB104K	7-74	AA		C
〃	7-91	AA		C
〃	7-106	AA		C
〃	7-115	AA		C
〃	7-118	AA		C
VCKYTV1EF104Z	7-23	AA		C
〃	7-24	AA		C
〃	7-30	AA		C
〃	7-35	AA		C
〃	7-45	AA		C
〃	7-50	AA		C
〃	7-51	AA		C
〃	7-61	AA		C
〃	7-67	AA		C
〃	7-72	AA		C
〃	7-73	AA		C
〃	7-76	AA		C
〃	7-79	AA		C
〃	7-92	AA		C
〃	7-96	AA		C
〃	7-120	AA		C
〃	7-128	AA		C
VCKYTV1HB102K	7-11	AA		C
〃	7-12	AA		C
〃	7-13	AA		C
〃	7-14	AA		C
〃	7-15	AA		C
〃	7-18	AA		C
〃	7-19	AA		C
〃	7-20	AA		C
〃	7-21	AA		C
〃	7-25	AA		C
〃	7-28	AA		C
〃	7-29	AA		C
〃	7-40	AA		C
〃	7-41	AA		C
〃	7-46	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCKYTV1HB102K	7-57	AA		C
〃	7-62	AA		C
〃	7-64	AA		C
〃	7-65	AA		C
〃	7-68	AA		C
〃	7-70	AA		C
〃	7-100	AA		C
〃	7-101	AA		C
〃	7-102	AA		C
〃	7-103	AA		C
〃	7-104	AA		C
〃	7-109	AA		C
〃	7-110	AA		C
〃	7-121	AA		C
〃	7-122	AA		C
〃	7-123	AA		C
〃	7-124	AA		C
〃	7-125	AA		C
〃	7-126	AA		C
〃	8-22	AA		C
〃	8-25	AA		C
〃	8-31	AA		C
VCKYTV1HB103K	7-38	AB		C
〃	7-119	AB		C
〃	8-16	AB		C
〃	8-17	AB		C
〃	8-37	AB		C
VCKYTV1HB122K	8-33	AB		C
VCKYTV1HB221K	7-113	AA		C
VCKYTV1HB222K	7-31	AA		C
〃	7-32	AA		C
〃	7-53	AA		C
〃	7-80	AA		C
〃	7-87	AA		C
〃	8-24	AA		C
VCKYTV1HB223K	7-108	AA		C
VCKYTV1HB472K	7-94	AA		C
VCKYTV1HB473K	8-21	AA		C
VCKYTV1HB821K	7-107	AA		C
VCKYTV1HF104Z	7-49	AA		C
〃	7-127	AA		C
〃	8-23	AA		C
〃	8-30	AA		C
〃	8-32	AA		C
〃	8-34	AA		C
〃	8-35	AA		C
〃	8-36	AA		C
VCQYNA1HM474K	8-4	AE		C
VHDRB705D//-1	7-145	AD		B
VHDS1ZB60//-1	8-117	AC		B
VHD1SS355//-1	7-141	AB		B
〃	7-142	AB		B
〃	7-143	AB		B
〃	7-144	AB		B
VHEBZX79B20/A	8-121	AC		B
〃	8-123	AC		B
VHEBZX79B3V3A	8-124			B
〃	8-125			B
VHEBZX79B6V8A	8-122			B
VHIFC2FM209V1	7-149	BK	N	B
〃	7-151	BK	N	B
VHIHCF4051M1T	7-155	AG		B
VHIKM29W040-1	7-150	AV		B
VHILMT2904DR2	8-49			B
〃	8-50			B
VHINJM2113M-1	7-159	AG		B
VHINJM2904M-2	7-158	AG		B
VHITC4S66F/-1	7-154	AC		B
VHITC7WT74FU1	7-148	AF		B
VHIULN2003ANS	7-147	AE		B
VHIW24258S7LE	7-152	AQ		B
VHIXC61AN45M1	7-153	AE		B
VHI27020FPB0C	7-157	BN	N	B
VHI62FP332P-1	7-308	AF		B
VHPSG206S//-1	7-171	AG		B
VHPTLP521-1BL	8-60	AE		B
〃	8-61	AE		B
VHPTLP627//-1	8-58	AH		B
〃	8-59	AH		B
VHVDSS301L/-U	8-119	AF		B

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VHVRA501PV6-1	8-1	AE		B
〃	8-2	AE		B
VHVSIOVS05K60	8-120			B
VRD-HT2HY222J	7-179	AA		C
〃	7-180	AA		C
VRD-HT2HY473J	8-70	AA		C
VRS-HT3AA101J	7-140	AA		C
VRS-HT3LA821J	8-71			C
VRS-TP2BD000J	8-27	AA		C
VRS-TP2BD120J	8-75			C
VRS-TP2BD150J	8-80	AA		C
VRS-TP2BD470J	8-82	AA		C
VRS-TP2BD560J	8-78	AA		C
VRS-TS2AD000J	7-117	AA		C
〃	7-169	AA		C
〃	7-170	AA		C
〃	7-184	AA		C
〃	7-191	AA		C
〃	7-215	AA		C
〃	7-219	AA		C
〃	7-236	AA		C
〃	7-237	AA		C
〃	7-248	AA		C
〃	7-249	AA		C
〃	7-254	AA		C
〃	7-261	AA		C
〃	7-291	AA		C
〃	8-79	AA		C
〃	8-100	AA		C
VRS-TS2AD101J	7-183	AA		C
〃	7-188	AA		C
〃	7-202	AA		C
〃	7-204	AA		C
〃	7-208	AA		C
〃	7-209	AA		C
〃	7-210	AA		C
〃	7-211	AA		C
〃	7-212	AA		C
〃	7-232	AA		C
〃	7-233	AA		C
〃	7-268	AA		C
VRS-TS2AD102J	7-240	AA		C
〃	7-264	AA		C
〃	8-84	AA		C
〃	8-89	AA		C
〃	8-95	AA		C
〃	8-105	AA		C
〃	8-111	AA		C
〃	8-112	AA		C
VRS-TS2AD103J	7-217	AA		C
〃	7-220	AA		C
〃	7-229	AA		C
〃	7-231	AA		C
〃	7-241	AA		C
〃	7-242	AA		C
〃	7-244	AA		C
〃	7-256	AA		C
〃	7-263	AA		C
〃	7-276	AA		C
〃	8-74	AA		C
〃	8-81	AA		C
〃	8-85	AA		C
〃	8-91	AA		C
〃	8-109	AA		C
VRS-TS2AD104J	7-189	AA		C
〃	7-190	AA		C
〃	7-260	AA		C
〃	7-271	AA		C
〃	7-273	AA		C
〃	8-115	AA		C
〃	8-116	AA		C
VRS-TS2AD105J	7-246	AA		C
VRS-TS2AD106J	7-245	AA		C
VRS-TS2AD121J	7-247	AA		C
VRS-TS2AD123J	7-255	AA		C
VRS-TS2AD124J	8-73	AA		C
VRS-TS2AD133J	7-265	AA		C
VRS-TS2AD151J	7-195	AA		C
〃	8-88	AA		C
VRS-TS2AD152J	7-167	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-TS2AD152J	8-83	AA		C
VRS-TS2AD153J	7-272	AA		C
VRS-TS2AD161J	8-72	AA		C
VRS-TS2AD163J	8-86	AA		C
VRS-TS2AD201J	7-282	AG		C
VRS-TS2AD203J	7-225	AA		C
〃	7-277	AA		C
〃	7-279	AA		C
〃	8-77	AA		C
〃	8-87	AA		C
VRS-TS2AD204J	7-274	AA		C
VRS-TS2AD222J	7-238	AA		C
〃	8-98	AA		C
VRS-TS2AD223J	7-207	AA		C
〃	7-234	AA		C
〃	8-101	AA		C
〃	8-106	AA		C
VRS-TS2AD224J	7-280	AA		C
VRS-TS2AD243J	8-94	AA		C
VRS-TS2AD244J	8-104	AA		C
VRS-TS2AD271J	7-182	AA		C
〃	7-192	AA		C
〃	7-205	AA		C
〃	7-206	AA		C
〃	7-283	AA		C
〃	7-284	AA		C
〃	7-285	AA		C
〃	7-286	AA		C
〃	7-287	AA		C
〃	7-288	AA		C
VRS-TS2AD3R0J	7-239	AA		C
VRS-TS2AD302J	7-275	AA		C
VRS-TS2AD303J	7-224	AA		C
〃	7-250	AA		C
〃	8-90	AA		C
〃	8-107	AA		C
〃	8-110	AA		C
VRS-TS2AD304J	7-259	AA		C
VRS-TS2AD332J	7-252	AA		C
〃	7-267	AA		C
〃	8-92	AA		C
〃	8-97	AA		C
〃	8-102	AA		C
〃	8-108	AA		C
VRS-TS2AD333J	7-181	AA		C
〃	7-186	AA		C
〃	7-187	AA		C
〃	7-193	AA		C
〃	7-197	AA		C
〃	7-198	AA		C
〃	7-200	AA		C
〃	7-201	AA		C
〃	7-203	AA		C
〃	7-221	AA		C
〃	7-226	AA		C
〃	7-228	AA		C
〃	7-230	AA		C
〃	7-289	AA		C
〃	7-290	AA		C
VRS-TS2AD391J	8-99	AA		C
VRS-TS2AD393J	7-262	AA		C
VRS-TS2AD433J	7-223	AA		C
VRS-TS2AD471J	7-185	AA		C
〃	7-194	AA		C
〃	7-196	AA		C
〃	7-199	AA		C
〃	7-213	AA		C
〃	7-214	AA		C
〃	7-216	AA		C
〃	7-218	AA		C
〃	7-222	AA		C
〃	7-227	AA		C
〃	8-113	AA		C
〃	8-114	AA		C
VRS-TS2AD473J	7-269	AA		C
〃	8-93	AA		C
VRS-TS2AD474J	7-257	AA		C
〃	7-278	AA		C
〃	8-76	AA		C
VRS-TS2AD512J	7-235	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-TS2AD512J	7-243	AA		C
VRS-TS2AD513J	7-266	AA		C
VRS-TS2AD562J	7-281	AA		C
VRS-TS2AD682J	7-88	AA		C
VRS-TS2AD751J	8-103	AA		C
VRS-TS2AD754J	7-258	AA		C
VRS-TS2AD822J	8-96	AA		C
VRSTS2AD1183F	7-251	AA		C
〃	7-270	AA		C
VSBC847B///-1	8-65			B
VSBS108////-1	8-64	AE		B
VSDPC114EK/-1	7-172			B
〃	7-176			B
〃	7-177			B
〃	7-178			B
〃	8-66			B
〃	8-67			B
〃	8-68			B
〃	8-69			B
VS2N5401///-1	8-63			B
VS2SA1037KS-1	7-173	AB		B
〃	7-175	AB		B
VS2SA1807-P-1	8-62	AE		B
VS2SC2412KS-1	7-174	AB		B
[X]				
XBBSD30P06000	1-B4	AA		C
XBPSN40P06K00	1-B5	AA		C
XEBSD30P08000	1-B3	AA		C
〃	5-B3	AA		C
XEBSD30P12000	1-B7	AA		C
XUBSD20P06000	3-B2	AA		C
[0]				
0CBBFZ89256Z/	9-28	AD		B
0CBLRZ6616ZN/	9-33	AQ		C
0CBLRZ6619ZQ/	9-34	AQ		C
0CBPCZ0275ZZ/	9-17	AD		C
0CBPJCEJ1601/	9-25	AH		A
〃	9-26	AH		A
0CBPKZ0194ZZ/	9-16	AC		C
0CBPZZ0906ZZ/	9-27	AH		A
0CBPZZ0940ZZ/	9-32	AB		C
0CBUAC0289AK/	9-41	AD		B
〃	9-42	AD		B
0CBUAG0161AC/	9-37	AQ		B
0CBUAY0016CK/	9-39	AD		B
〃	9-40	AD		B
0CBUBC0125DK/	9-18	AD		B
〃	9-19	AD		B
〃	9-20	AD		B
〃	9-21	AD		B
0CBUBC0302BZ/	9-24	AE		B
0CBUBC0336AZ/	9-23	AL		B
0CBUBDAX270A/	9-69	AD		B
0CBUBDBE200D/	9-73	AD		B
0CBUBDBM300D/	9-71	AC		B
0CBUBXAD2R0A/	9-70	AD		B
0CBUBXAD6R2C/	9-72	AD		B
0CBUBY0020AK/	9-22	AD		B
0CBUCB0199AZ/	9-29	AR		B
0CBUDA0128AK/	9-38	AD		B
0CBUDC0163CZ/	9-35	AG		B
〃	9-36	AG		B
0CBUDC0232AK/	9-66	AF		B
0CBUEEC105CH/	9-44	AC		C
〃	9-45	AC		C
0CBUEEC335CH/	9-43	AC		C
0CBUEFDR33DB/	9-52	AE		C
0CBUEXCAO000/	9-5	AB		C
0CBUEXCAS103/	9-64	AB		C
0CBUEXCAS152/	9-47	AB		C
〃	9-56	AB		C
0CBUEXCAS154/	9-63	AB		C
0CBUEXCAS183/	9-48	AB		C
0CBUEXCAS184/	9-54	AB		C
0CBUEXCAS223/	9-58	AB		C
0CBUEXCAS273/	9-60	AB		C
0CBUEXCAS330/	9-49	AB		C
0CBUEXCAS331/	9-46	AB		C
0CBUEXCAS334/	9-57	AB		C
0CBUEXCAS390/	9-53	AB		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
0CBUEXCAS471/	9-51	AB		C
0CBUEXCAS472/	9-55	AB		C
〃	9-61	AB		C
〃	9-62	AB		C
0CBUEXCAS473/	9-50	AB		C
0CBUEXCAS822/	9-59	AB		C
0CBUEZ0507ZZ/	9-67	AD		B
0CBUFBA102FE/	9-68	AD		B
0CBUGAB101RV/	9-12	AF		C
0CBUGAC222VV/	9-9	AK		C
0CBUGAE561TS/	9-7	AH		C
0CBUGCM392BJ/	9-6	AF		C
0CBUGCU681BR/	9-14	AC		C
0CBUGCV102HZ/	9-3	AD		C
0CBUGFF223EH/	9-15	AC		C
0CBUGFF474JA/	9-8	AF		C
0CBUGFM224KR/	9-1	AF		C
0CBUGXAED104/	9-10	AC		C
0CBUGXAEF102/	9-13	AC		C
0CBUGXAEF222/	9-4	AC		C
0CBUGZ1041ZZ/	9-11	AF		C
0CBUGZ1072ZZ/	9-2	AN		C
0CBUKZ0826ZZ/	9-30	AK		C
0CBUZZ0156ZZ/	9-31	AN		C
0CB829655027/	9-65	BE		B

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